DOCUMENT RESUME

ED 228 980	IR 010 643
AUTHOR	Braden, Roberts A., Ed.; Walker, Alice D., Ed.
TITLE	Television and Visual Literacy. Readings from the 13th Annual Conference of the International Visual Literacy Association.
INSTITUTION	Indiana Univ., Bloomington.
PUB DATE	82
NOTE	276p.
PUB TYPE	Collected Works - Conference Proceedings (021) -- Information Analyses (070) -- Reports - Research/Technical (143)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Aesthetic Education; *Cognitive Processes; Course Descriptions; Media Research; *Teaching Methods; *Television Viewing; Videodisc Recordings; Visual Arts; Visual Environment; Visualization; *Visual Learning; *Visual Literacy; *Visual Stimuli
IDENTIFIERS	Intelligent Videodisc Systems

ABSTRACT

This collection covers a variety of workshops and presentations related to the research, theory, technology, or implementation of some aspect of visual literacy. More than 40 authors are represented, with 12 of the papers dealing directly with television. The document begins with an overview and a keynote address by Neil Postman. Individual papers have been classified and grouped according to categories: research papers and literature reviews; theoretical statements and position papers; course outlines (one for a college course in visual literacy and one from a course to teach teachers to use television effectively); and demonstrations, applied theory, and case studies. Numerous diagrams, figures, and illustrations are provided to contribute to the visual emphasis. Specific topics include preschool television viewing; elements and uses of microcomputers, videodiscs, photographs, illustrations, and television; visual media design; creative thinking; color; teaching methods; and projects. (Author/LMM)

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TELEVISION

and VISUAL LITERACY

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READINGS FROM
THE 13th ANNUAL CONFERE
of the
INTERNATIONAL
VISUAL LITERACY ASSOCIATION

Edited by
ROBERTS A. BRADEN and ALICE D. WALKER
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Published at
INDIANA UNIVERSITY, BLOOMINGTON, 1982.

IR010643

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CONFERENCE THEME

TELEVISION AND VISUAL LITERACY: AN OVERVIEW

by

Roberts A. Braden and Alice D. Walker

The program theme for the International Visual Literacy Association's 1981 annual conference was "Television and Visual Literacy." As a theme it was simple, direct, and appropriate. Conference planners often agonize over theme selection, seeking the exact combination of interesting, relevant, inspirational, provocative, and otherwise acceptable terms which will assure a successful and memorable program. Then, more often than not, their themes have a way of going almost unnoticed. Such was not the case at Lexington. One could not help but notice the emphasis upon Television and Visual Literacy at the 1981 IVLA Conference. Kentucky Educational Television (KET) provided the planning committee, the conference host (Peg Griffith), and the use of their facilities for workshops. Once the conference began, several members of the KET staff actively participated in sessions. The result was predictable. The TV people were everywhere, mixing with the sundry other visual literists. The two subjects were in constant interaction. Neither television nor visual literacy was ever allowed to get too far from the center of discussion, thus lending deeper meaning to the theme.

The program itself was a good example of the many ways in which the television and visual literacy relationship can be explored. As at any IVLA conference, the primary interest was visual literacy. At the same time, a dozen sessions addressed television directly. On Sunday, LaVerne Miller conducted a workshop titled "Television Courses for College Credit: How to Do It," Bob Shy and Bob Johnson held a "Small Format Video Workshop," Michael Griffith's two-part workshop was on "Doing Your Own Animation," and Richard Smith's session was on "Writing Visually."

The keynote address on Sunday night by the well known author-educator, Neil Postman, asked (and answered) the provocative question, "Does Television Change the Way We Think?" Then on Monday four presentation sessions had TV topics: "The ABC/NEA Videodisc Project" by Jack Kleinmann, "Sharing What Works: The Nitty Gritty of Video, Instructional Use, Applications and Management" by LaVerne Miller, "Dialogue Design for an Intelligent Videodisc System," by Michael Streibel, and "Using Television, the Medium Accused of Perpetuating Bias, to Counter Ethnic and Sex Role Stereotyping," by Pat Seeley.

On Tuesday morning Barbara Seels presented a paper, "Environments for Pre-School Television Viewing: Research and Theory." And, appropriately, the last presentation of the conference was "Learning from Television Documentaries: The Open University Experience," a joint presentation by our English colleagues Tony Bates and Colin Robinson.

In organizing the contents of this volume it was a temptation to assemble all of the TV topics into a separate section. However, since television so completely permeated the 1981 conference, we finally opted for an organization that clustered the contents more by format and type of presentation than by the topical content.

Readings vs. Proceedings

In previous years (1969, 1973, 1978, 1979, and 1980) the papers that accompanied the presentations at IVLA conferences were gathered together and published as "proceedings." This year we have changed the label to "readings." Neither term provides a very accurate description of what this volume is or what the earlier volumes have been. Actually, they are collected supporting papers that allow a *reader* to get a rough approximation of the content that was presented. They are primarily verbal. They are intended to be *read*. Thus, the new label, readings.

Visualization

In several cases the paper included in the readings is barely a shadow of the original. The written remnant is a mere condensation of the spoken explanation which supported a primarily visual presentation. To use Debes' term, these highly visualized sessions tend to be *evanescent*. They occupy fleeting moments in time with images dancing across screens and tubes or with still pictures briefly projected in darkened rooms. The authors of the papers which represent such sessions could never capture on paper the special ambience of the visual event. However, a good many of the 1981 "visualizers" have shown their multiple talents and have provided us with quite readable material related to their visualized sessions. To support that special effort we have attempted to include representative black and white reproductions of images from a number of programs. Except that printing pictures (particularly half tones) is so expensive, we would have included many more of the images from the Lexington conference in this volume.

Selections and Omissions

Scholars who are unfamiliar with IVLA may wonder about the selection process for conference participation. Participation is refereed at the proposal level. That is, "papers" are invited, but presentors are selected by committee review of proposals and abstracts only. At least two committee members review every proposal. Not all are accepted. This simple refereeing system accommodates to a population of presentors that includes many whose commitment to the "visual" in visual literacy exceeds their interest in writing formal papers. Not being able to see the final product in advance complicates the selection process. However, the 1981 committee performed beautifully in their selections in spite of the difficulties.

The task of the editors of these readings is also complicated by proposal selection rather than paper selection. We do not have a paper for every session to include in these pages. In the majority of instances where a paper is omitted, the session did not lend itself to a written form. For the most part, however, we have provided at least a sampling of each of the offerings composing the highly successful 1981 IVLA Annual Conference.

Acknowledgements

We are grateful to the many individuals who have assisted in producing this volume. Special appreciation is expressed to Peggy Griffith for her help in collecting the papers, to Beulah Prestrude for graphic art, to Dave Huron for photography, to Jean Pett for the final typing, and to Dennis Pett for printing arrangements.

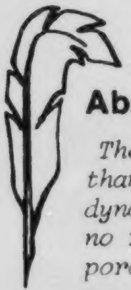
DOES TELEVISION CHANGE THE WAY WE THINK?

by
NEIL POSTMAN
New York University
New York, New York

I find myself in an awkward position this evening because, unless I am badly mistaken, what I shall be saying runs against the grain of the thinking of many of you, and may even be hostile to your professional commitments. You may get a sense of how I feel if you imagine --let us say--what Martin Luther would have felt in addressing the College of Cardinals in Rome in the year 1525; that is, very nervous and in need of protection. This is probably not an awfully good analogy--come to think of it--because both Luther and the Cardinals would want to claim that their respective and opposite beliefs have the authority of God behind them. Well, I won't claim that, and I'm pretty sure you don't. I'm also pretty sure that no matter what I say, you will curb your temptation to consign me to Hell (although I do think it's possible that I could be stripped of my room at the Hyatt-Regency). Well, we shall see.

What I have been invited to talk about is television and some of its effects on our culture, almost all of which are, in my opinion, bad--indeed disastrous. Of course, you will understand that when I speak of these effects as "disastrous," I mean that they are disastrous from my very limited point of view. Obviously, what appears disastrous to me may be regarded as marvelous by others. After all, I'm from New York City, and most things appear to me disastrous. But even more to the point, what may appear disastrous at one historical moment may turn out to be marvelous in a later age. There are, in fact, many historical instances of someone's correctly predicting negative effects of a medium of communication, but where, in the end, what appeared to be a disaster turned out to be a great advance.

The best example I know of concerns the great Athenian teacher, Socrates, who feared and mocked the written word, which in his time



About the Keynote Address:

The keynote address by Neil Postman was a speech rather than a presented paper. As a speech it was provocative, dynamic, well said, and entertaining. Since we know of no recording of the speech, we cannot share the extemporary asides or post-speech response to questions that would be part of an exact transcription. However, the speaking notes, graciously loaned to us, were so complete that we were able to compile a near-verbatim version of his planned comments.

was beginning to be used for many purposes and with great frequency. But not by him. As you know, Socrates wrote no books, and were it not for Plato and Xenophon, who did, we would know almost nothing about him. In one of his most enduring conversations, called the Phaedrus, Socrates gives three reasons why he does not like writing. Writing, he says, will deprive Athenians of their powerful memories, for if everything is written down, there will be no need to memorize. Second, he says that writing will change the form of education. In particular, it will destroy the dialectic process, for writing forces students to follow an argument rather than participate in it. And third, writing, he says, will change concepts of privacy and the meaning of public discourse, for once you write something down, you never know whose eyes will fall upon it--those for whom it is intended but just as likely those for whom it is not intended. Thus, for Socrates, the widespread use of writing was, and would be, a cultural disaster. And in a sense, it was. For all of Socrates' predictions were correct, and there is no doubt that writing undermined the oral tradition which Socrates believed to be the most suitable mode for expressing serious ideas, beautiful poetry, and authentic piety. But what Socrates did not see was what his student, Plato, did: that writing would create new modes of thought altogether and provide new and wonderful uses for the intellect.

I have already compared myself to Luther, and I don't think I ought to add to the list Socrates lest you think your speaker is a lunatic. But I do address you this evening as a Socrates-like character, prophesying that the advent of the televison age will have the direst outcome. Perhaps there is among you a Plato-like character who can see what I cannot, and who can find a basis for optimism about the effects of TV. From an examination of the program for this conference, I suspect that there are a few of you. In any case, I will begin by making an observation with which everyone here would probably agree, namely, that every culture tends to be greatly influenced by its dominant forms or modes of communication. I assume I will still have your agreement when I say further that such modes of communication will have their greatest impact on the intellectual habits and predispositions of a people. What I mean by this is that our concepts of knowledge and our patterns of thinking are shaped by the forms of communication in which we are immersed. Because this statement is fundamental to my argument, I will take the liberty of repeating it: Our concepts of knowledge and patterns of thinking are shaped by the forms of communication in which we are immersed. An obvious example of this idea can be found by studying how the alphabet altered the organization and level of complexity of the Western mind. The change-over from ideographic writing to phonetic writing especially after the Greeks added vowels to the Semitic alphabet around 800 B.C., resulted in one of the great intellectual leaps in human history. It is fairly clear that the precise objectification of human speech in the form of arbitrary symbols greatly enlarged the capacity for abstract thought and led to the development of deductive logic, geometry, historiography, and analytic science.

Of course, we know even more than this about the intellectual impact of the printing press on the Western mind. As you know, for a thousand years after the fall of the Roman Empire, literacy virtually disappeared. And when it returned in the 16th century, its force was so great that within a span of a hundred years it broke apart the monopoly of the Catholic Church, it created the concept of individualism, and it nurtured the growth of nationalism, capitalism and inductive science. In short, the printing press molded the intellectual shape of the modern world.

To get some idea of what literacy meant in the century following Gutenberg's invention, consider the case of two men--one named William, the other named Paul. In the year 1605, they attempted to burglarize the house of the Earl of Sussex. They were caught and convicted. Here are the exact words of their sentence, as given by the presiding magistrate: "The said William, does not read, to be hanged. The said Paul reads, to be scarred." Paul's punishment was not exactly merciful; it meant he would have to endure the scarring of his thumbs. But unlike William, he survived because he had pleaded what was called "benefit of clergy," which meant that he could meet the challenge of reading at least one sentence from an English version of the Bible. And *that* ability, according to English law in the 17th century, was sufficient grounds to exempt him from the gallows. I suspect you'll agree with me when I say that of all the suggestions I have ever heard about how to motivate people to learn to read, none can match the method of 17th century England.

The name I give to that period of time during which the Western mind submitted itself to the sovereignty of the printing press is The Age of Exposition. Exposition is a mode of thought, a method of learning, and a means of expression. Almost all of the characteristics we associate with the mature intellect were either generated or amplified by typography, which has the strongest possible bias toward the expository mode. The characteristics I refer to are a sophisticated ability to think conceptually, deductively, and sequentially; a high valuation of reason and order; an abhorrence of contradiction; a large capacity for detachment and objectivity; and a tolerance for delayed response. The argument I wish to make tonight is this: As television moves typography to the periphery of our culture, and takes its place at the center, The Age of Exposition is coming to an end. It is being replaced by what may be called, The Age of Narration, or to be both more precise and picturesque, The Age of Show Business.

I do not use the phrase, The Age of Show Business, as a metaphor. I mean it to be taken literally, although there are two senses in which this might be done. First, it is in the nature of television to transform every aspect of life into a show business format, which is why TV's capacity to amuse approaches infinity. And second, that the business of television is to *show*. TV, by its nature as a visual medium, must forego abstraction, logic, and exposition. Its business is to make experience at all times concrete. Rose Goldsen was, in my opinion, only half-right in calling her book about television, *The*

Show and Tell Machine. Television does not, and cannot, do much telling, for telling requires an elaborated use of language. Television is, however, the Great Showing Machine.

Now, before I proceed to explain how television is making American culture into one continuous Las Vegas act, I must acknowledge that this tendency began long before television came on the scene. It began in the mid-19th century with the advent of what Daniel Boorstin calls The Graphic Revolution; that is, it began with the invention of a remarkable set of technologies which brought forth mass produced photographs, pictures, and posters to compete with the printed word. Indeed, in the late 19th century, a logician from Oxford saw precisely where we were headed even though he could not have known about television. I refer to Charles Lutwidge Dodgson, known to us as Lewis Carroll. Some of you may recall that just before Alice embarks on her adventures in Wonderland, having nothing to do on a lazy summer day, she peeks at a book her sister is reading. But the book contains no pictures or conversations,by which Alice means stories. All that is in it is exposition. "And what is the use of a book," Alice thinks, "without pictures or conversations?" Lewis Carroll was making the point that the pictorial and narrative mode is of a lower order of complexity than the expository. Pictures and stories are the natural form in which children understand the world. Exposition is for grown-ups. Carroll suspected that the Age of Exposition was ending, and that in the future, we would all be like Alice, wondering, what is the use of a book without pictures or conversations? That is to say, he suspected we would all be like children.

And so television did not begin the process of infantilizing our minds. But it so clearly accelerates the process that I believe it is fair to say that TV is both the culmination and apotheosis of the Graphic Revolution.

Now, in considering the ways in which the Age of Show Business descends upon us, we have available several entry points but none more interesting than the meaning of political consciousness and judgment in a TV-dominated society. For example, prior to TV, political leaders gave information largely in the form of linguistic statements, which their readers and audiences were required to evaluate. I do not mean to say, incidentally, that emotion played no role in that evaluation. Good speakers, like Lincoln or William Jennings Bryan or Franklin Roosevelt, have always employed entertaining or deeply moving rhetorical strategies. But in the end they had no choice but to provide the citizenry with arguments--that is, reasons, hypotheses, deductions, explanations, assertions, denials. These are the stuff of exposition, and these are what their audiences and readers were prepared to unravel. With the coming of television, arguments become largely irrelevant, and for an obvious reason. Whether they like it or not, our political leaders today must give us themselves rather than their talk. How they stand, smile, fix their gaze, perspire, etc., overshadows--in fact, largely obliterates--anything they might say. The visual image, not subjects and predicates, is now the basic unit of political discourse. That is why those aspiring to political office must now employ "image managers". It is, after all, much more difficult to control what one projects visually than to control one's subjects and predicates. And that, incidentally, is why Richard Nixon could not shake his image as a used car salesman and Gerald Ford his image as an oaf. Television is solely responsible for these enduring perceptions because it reveals with precision most of the information "given off" by the living images on the screen. It is, in fact, a mistake for us to continue to use the phrase, "television audience," a metaphor taken over from radio. Something like television vidience would be better. Even in those cases where the image remains relatively fixed, as during a Presidential address, it is still at the center of one's consciousness, demanding a response and in sharp competition with spoken language. Where the TV image is constantly changed, as is normally the case, the viewer is entirely occupied, if not overwhelmed, by non-verbal information. TV, to put it simply, does not call one's attention to subjects and predicates, which are abstract, slow-moving, sequential, and intellectually complex. TV calls attention to personalities, which are concrete, vivid, holistic, and immediately accessible.

I am sure most of you have heard this sort of thing said before but what it means is that in the TV age, political judgment is transformed from an intellectual assessment of propositions to an intuitive and emotional response to the totality of an image. In the television age, people do not so much agree or disagree with politicians, as they like or dislike them. TV redefines what is meant by "sound political judgment," by making it into an aesthetic rather than a logical matter. One of the more revealing acknowledgements of this fact, came recently --and I dare say, inadvertently--from Jessica Savitch, the CBS correspondent. "Voters and viewers," she said, "have come of age in the 80's. Viewers have a tremendous amount of visceral smarts." She went on to observe that these visceral smarts allow viewers to know what is real, what has merit and what is true. Like you, I can only guess at what "visceral smarts" is supposed to mean but I suspect that whatever it is, it is as available to a barely literate ten year old as it is to a well-informed fifty year old. What Ms. Savitch is saying, of course, is that the TV experience does not require competence in language or logic, and that such competence may indeed even be an obstruction in seeing the truth. Here then is a new epistemology of politics.

Now the point to be insisted on here is that the replacement of the brain by the viscera in political judgment represents a dramatic departure from a long tradition. When the United States Constitution was written, Madison, Hamilton and their colleagues assumed that mature citizenship necessarily implied a fairly high level of literacy and its concomitant analytic skills. For this reason, the young, commonly defined as those under twenty-one, were excluded from the electoral process because it was further assumed that the achievement of sophisticated literacy required training over a long period of time as indeed it does. These assumptions were entirely fitting in the 18th century in a society organized around the printed word, where political discourse was conducted largely through books, newspapers, pamphlets and an oratory very much influenced by print. As Tocqueville tells us, the politics of America was the politics of the printed page.

Whatever other assumptions guided the development of America's political structure, none was more deeply ingrained than that visceral smarts were irrelevant to the making of political judgments and that expositional skills were essential. While it may go too far to say, as George Counts once remarked, that the electric media have repealed the Constitution, it is obvious that the making of political judgments in the age of television does not call upon the complex skills of literacy, does not even require literacy. How many Americans of voting age have ever read anything Ronald Reagan has ever written? Or have read anything written by those who have provided him with his ideology? How many were able to follow the arguments advanced in the Presidential debates? How many believed that Ronald Reagan advanced arguments which Carter or Anderson could not refute?

Merely to ask such questions is to know, at once, how irrelevant they are, to realize what a minimal role ideological premises, logical consistency and force, or adeptness with language play in the assessment of a television image. Television has changed the symbolic arena in which politics is expressed and understood.

In our time, politics is not The Federalist Papers. It is not the Lincoln-Douglas Debates. It is not even Roosevelt's fireside chats. Politics is a Las Vegas act. It is good looks and amiability. It is fast-moving imagery. A quick tempo, a good show. It is celebrities. Because of this it is even possible that some day a movie actor may become President of the United States.

If this analysis seems to exaggerate the situation, then I ask you to consider this: It is well-established that most Americans receive most of their information about the world through TV, much of it through the format of the television news show. And what is the form of communication these shows most nearly resemble? I submit that it is what used to be called "vaudeville." Each TV news show has a musical theme, is divided into acts, features attractive men and women, is entirely discontinuous in its content. In a recent biography of Groucho Marx, Jack Benny is quoted as having said that it was almost impossible for any act to follow the Marx Brothers in the old vaudeville days. Of course, in vaudeville, it was a matter of great importance which acts on the bill came first, which next, which last. The point is that in TV news shows, such show business values are equally important. For a TV news show is only marginally concerned with public information. What is important is its tempo, the celebrity of its actors, the pleasant familiarity of its ambience, above all, the numbers of people in the house. In short, a TV news show is precisely what its name implies:

A show is an entertainment, a world of artifice and fantasy carefully staged to produce a particular series of effects so that the audience is left laughing or crying or stupefied.

Just as TV turns politics and public information into a show business package, it does the same for the world of commerce. There is, for example, nothing in the form of a TV commercial which requires anything but visceral response. TV commercials do not use propositions to persuade; they use visual images, as for every other purpose. Such language as is employed is highly emotive and only rarely risks verifiable assertions. Therefore, commercials are not susceptible to logical analysis, are not refutable, and, of course, do not require sophisticated judgment to assess. Ever since the Graphic Revolution, Commercial Man has been taken to be essentially irrational, not to be approached with argument or reasoned discourse, but with entertainment. On television, this supposition is carried to such extremes that we may charge the television commercial with having rejected Capitalist ideology altogether. That is to say, the television commercial has abandoned one of the key assumptions of mercantilism, which is that both buyer and seller are capable of making a trade based on a rational consideration of self-interest. This assumption is so deeply engrained in Capitalism that our laws severely restrict the commercial transactions children are allowed to make. In Capitalist ideology, itself heavily influenced by the rise of literacy, it is held that children do not have the analytical skills to evaluate the buyer's product, that children are not yet fully capable of rational transactions. But the TV commercial does not present products in a form which calls upon analytic skills or what we customarily think of as rational and mature judgment. It is not facts or arguments that are offered to the consumer but mini-entertainments which both adults and children can enjoy without the burden of logic or verification. It is, therefore, misleading even to call this form of communication "commercials" since they disdain the rhetoric of business and do their work largely in an entertainment mode. Television is the first true theater of the masses, not only because of the vast number of people it reaches but also because almost everything on television takes the form of an entertainment, not an argument or a sequence of ideas. Politics becomes an entertainment, news an entertainment, commerce and religion an entertainment. Even science becomes an entertainment. That is why television programs such as Cosmos and The Ascent of Man are as visually dynamic and theatrical as anything else on TV; which is to say that Carl Sagan and Jacob Bronowski are presented--must be presented--as personalities, entertainers and story tellers, surrounded by interesting things to look at. The science of astrophysics does not play well on television, and so we must watch Carl Sagan ride a bicycle as he tries to speak of it. Similarly, there is no way to televise a theory of cultural change, which is what Bronowski's The Ascent of Man was supposed to be about. But not one viewer in a hundred was aware of that fact since his theory, as well as his supporting statements, were buried beneath a torrent of short-duration images. Only if the images were removed so that the language could be heard (as was the case when the script was printed in book form) could Bronowski's ideas become apparent and his questionable theory evaluated.

It is common to hear critics complain that TV appeals to the lowest common denominator. But in what sense can we say of TV's images (e.g., Sagan riding a bicycle) that there is a higher intellect to which they can aspire? The superb science writer and professor of physics, Jeremy Bernstein, has put forward an answer of sorts in his critique of Cosmos. Bernstein proposed that when a science program is presented the visual image should be kept stable, the professor on screen should be situated behind a desk, and he or she should simply talk. Assuming that the talk includes complex facts, ideas, and conjectures, such a program, Bernstein supposes, would stimulate an educated imagination. But such a program is not television. (It is Sunrise Semester.) It is television used to replicate the lecture hall or classroom, and it is doubtful that even those who aspire to the higher learning would watch for very long. Such people go to lecture halls and classrooms for what Professor Bernstein hopes they will learn. They expect something rather different from television, and those who produce programs provide it. Two months ago, CBS provided an example of commercial television's version of a "science show." It was called Walter Cronkite's Universe. No doubt Professor Jeremy Bernstein, being an adult and an educated one, believes that the universe can speak well enough for itself and requires no boost from or association with Mr. Cronkite. CBS knows better. And what CBS knows is that on television even nature's stars will lose their luster unless hyped by one of their own stars. And so, inevitably, we get Walter Cronkite's Universe. But, even better, on television, God cannot go it alone either. So we also get Rex Hubbard and His Family, on location, bringing a message from God. Reverend Hubbard is only one of a covey of preachers who, in using television, have accomplished the near infantilization of theology. Surrounded by singers, members of their family, and exceedingly handsome people both on the stage and in the audience, these evangelists offer a religion that is as simplistic and theatrical as any Las Vegas act. No dogma, terminology, logic, ritual or tradition are called upon to burden the minds of the viewers who are required to respond to the charisma of the preacher.

Of course, the most striking example of the "show business" model of the world is Sesame Street, the highly acclaimed educational show for children. Its creators have accepted without reservation the idea that learning is not only not obstructed by entertainment but, on the contrary, is indistinguishable from it. In defending this conception of education, Jack Blessington, director of educational relations for CBS, has observed "that there is a gap between kids' personal and cognitive development that schools don't know how to address." He went on to explain: "We live in a highly sophisticated, electronically-oriented society. Print slows everything down." Just so. Print means a slowed-down mind. Electronics means the speeded-up mind. One of the consequences of this fact--apparently unnoticed by Mr. Blessington--is that television "Las Vegasizes" our culture. The gap he speaks of is the difference between the slowed down processes of thought encouraged by exposition and the fast tempo responses required by a visually entertaining show. It goes without saying that Sesame Street in particular would do very nicely at prime-time with both adults and children, not because of its alleged educational function but because, quite simply, it is a first class act.

Speaking at the Commencement Ceremonies at Emerson College in 1981, Leonard H. Goldenson, Chairman of the Board of ABC, told the graduates that ". . . we can no longer rely on our mastery of traditional skills. As communicators, as performers, as creators--and as citizens--(the electric revolution) requires a new kind of literacy. It will be a visual literacy, an electronic literacy, and it will be as much of an advance over the literacy of the written word we know today as that was over the purely oral tradition of man's early history." If you could see the sentences I just quoted, you would note that Mr. Goldenson has himself already lost some mastery of the traditional skills to which he refers. But putting that aside, I believe he is quite correct in observing that television and other electric media do not require mastery of traditional skills. That is exactly my point, for it means that such skills will be unable to sustain a distinction between mature and childish thought. As for his statement that "visual literacy" will be as much of an advance over the literacy of the written word as that was over the oral tradition, I can only wonder at what sort of advances Mr. Goldenson has in mind. Of course, it would be naive and inaccurate to claim that literacy has been an unmixed blessing. But the written, and then the printed, word brought us logic, history, science, education, indeed, the very technology over which Mr. Goldenson presides. What I am saying is that I believe Mr. Goldenson's optimism is wrong, and dangerously wrong. For it is a reckless conceit to assume that with every technological innovation the human situation is advanced. We must face the possibility that while television and other graphic media may increase our sensuous pleasure, they may decrease our intellectual complexity. We must consider the possibility that the new media are "cognitively regressive" in that they reduce the range and power of our capacity to abstract and conceptualize. Writing in 1935, Rudolph Arnheim warned us about this, and I suspect that the graduating class at Emerson College would have been better served by Arnheim's warning than Goldenson's cheerful prognosis. I will close by quoting Arnheim:

> We must not forget that in the past the inability to transport immediate experience and to convey it to others made the use of language necessary and thus compelled the human mind to develop concepts. For in order to describe things one must draw the general from the specific; one must select, compare, think. When communication can be achieved by pointing with the finger, however, the mouth grows silent, the writing hand stops, and the mind shrinks.

RESEARCH PAPERS & LITERATURE REVIEWS

The interdisciplinary makeup of IVLA has many interesting aspects. Not the least of these is the wide variety of approaches taken to scholarly research. Every kind of investigation is welcomed as legitimate. At the 1981 Lexington, Kentucky meeting the research topics were diverse as were the investigators' methods.

John Hortin's paper was strong on theory but is included in this section because of the strength of his literature review. The papers by Nikkos Metallinos, Marina McIsaac, and Donald Desfor are in the experimental tradition. Barbara Seels has reported an interesting survey, and Rhonda Robinson has described an inquiry that used multiple methods of data gathering.

One of the more charming characteristics of an IVLA convention is the procedural freedom provided to individuals in the reporting of research findings. The refereeing process is not governed by concern for format, methodology, or tradition-bound ways of doing things. Thus, some participants elect to prepare and "read" papers that conform to the narrow rules of a style manual adopted by their parent discipline. Others opt for less formality and greater generality when sharing their results. The same range of formality is reflected in the style and format of our research presentors' papers.

EXPERIMENTAL PHENOMENOLOGY AND VISUAL LITERACY

by

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The pervasiveness and importance of images in our world today cannot be overstated. We are influenced, taught, and manipulated by all kinds of visual information including television, magazines, signs and symbols, advertisements, body language and motion picture films. The process by which we receive visual meaning and transmit visual meaning is a major concern in the study of visual literacy. Visual literacy "is based on the confluence of knowledge, theory, and technology in many areas" (Debes, 1968). The people who have influenced thinking about the concept of visual literacy include John L. Debes, Clarence Williams, Colin Murray Turbayne, Rudolf Arnheim, and Robert McKim. Eastman Kodak Company has played a role. Researchers on the left- and right-brain hemispheres and perception theory as well as artists and educators have been important in the visual literacy field. Debes, who is retired from the University of Rochester, coined the term visual literacy (Fransecky & Debes, 1972) and along with Clarence Williams helped found the International Visual Literacy Association. The "Rochester School" of John L. Debes, Clarence Williams, and Colin Murray Turbayne molded the development of the theoretical foundations of visual literacy (Hortin, 1980a).

Eastman Kodak in Rochester, New York, was instrumental in providing financial backing for visual literacy programs and research. Kodak's help has been a mixed blessing, however, because more credence would probably have been given to past research in visual literacy if Kodak had not played such an important part in the support of research at the nascent stage of the visual literacy movement.

Turbayne (1970), a philosopher at the University of Rochester, has been credited with making the analogy between verbal language and visual language in his book, The Myth of Metaphor. Arnheim's (1969) theory on visual thinking was also important in developing the visual literacy concept.

Basically, visual literacy is the ability to understand (read) and use (write) images and to think and learn in terms of images (Hortin, 1980b). Flory (1978) summarized the primary concepts that support the rationale for visual literacy:

1. A visual language exists.
2. People can and do think visually.
3. People can and do learn visually.
4. People can and should express themselves visually.

Some visual literacy proponents have become caught up in the current interest in left- and right-brain hemispheric research and used this research to support the need for visual literacy programs. However, a broader perspective on research is needed, one that investigates other areas of mind research including brain chemistry, psychobiology, visual thinking, mind-body connection, and the dual coding processes. I believe that curriculum theorists need to become more aware of the uses of visual thinking, especially visual rehearsal. McKim (1972) wrote:

> Visual thinking pervades all human activity, from the abstract and theoretical to the down-to-earth and everyday. An astronomer ponders a mysterious cosmic event; a football coach considers a new strategy; a motorist maneuvers his car along an unfamiliar freeway; all are thinking visually. You are in the midst of a dream; you are making order out of the disarray on your desk; you are thinking visually.

Visual Literacy Research

The research used to support visual literacy has come from other fields of study. Specific articles or research studies on visual literacy that have had an impact and deserve mention include those of Fransecky and Debes (1972), Hocking (1978), Fork and Newhouse (1978), Dwyer (1972, 1978), Anderson (1974), Ausburn and Ausburn (1978), Cureton and Cochran (1976), Edwards (1979), Fleming (1977), Fransecky (1972), Gozemba (1975), Levie (1978), Nuell (1971), Paivio (1971, 1975), Turner (1978), Wood (1974), Woodruff (1976), and Cochran, Younghouse, Sorflaten, and Molek (1980).

Much of the research in visual literacy has centered on teaching visual literacy skills using different types of media, e.g., film or "Photo-Story Discovery Sets," or teaching visual literacy understanding and applying visual literacy concepts within the context of a discipline, e.g., English or reading (Culhane, 1970; Foster, 1976; Fransecky, 1972; Hutton, 1978; Johnson, 1977; Newhouse, 1977; Strandberg and Griffith, 1969; Wells, 1975; Wood, 1974). The work of John Debes (1972, 1974) has stressed the need for developing the skill of sequencing pictures and organizing ideas. The translation of information from verbal mode to visual mode was another important research aspect of visual literacy (Hocking, 1978; Williams, 1970). Suggestions for film utilization were supplied by the studies of Wood (1974), Woodruff (1976), Johnson (1977), Hardwick (1975), and Foster (1976). Dwyer (1969, 1970, 1972) provided generalizations and guidelines on the use of visual information in the classroom with his work on illustrations and their effectiveness. Mulholland (1970) did research on biofeedback attention and visual information.

Many researchers have used visual literacy to improve students' reading and writing skills. While no clear connection between visual literacy and verbal literacy has been proven, the research is encouraging (Garbacik, 1978; Strandberg & Griffith, 1970; Newhouse, 1977; Wells, 1975; Lubke, 1978). In fact, Strandberg and Griffith (1969) showed that if a child has the opportunity to work with visual sequencing and talk about pictures he has locally produced, he increases his verbal articulation

(Debes, 1972; Newhouse, 1977; Wells, 1975). Wells (1975) found the use of visual literacy is an effective means of improving language skills. However, Minor (1970) suggested that better control must be imposed on future research on visual literacy and language development.

Several researchers found that visual literacy training helped improve self-concept (Gardner & Ingram, 1970; Hefferman-Cabrera, 1970; Hedges, 1972; Debes, 1972; Culhane, 1970; Ross, 1972; Cureton & Cochran, 1976; Case-Gant, 1973).

Perception theory has played a major role in developing the visual literacy concept and probably started with the theory of pictures offered by Gibson (1954). The theories of perception have supported the need for training, and the important components of training in visual literacy are visual elements. Turbayne (1970), Dondis (1973), Ruesch and Kees (1961), Zettl (1973), Kepes (1966), and others have dealt with visual elements. Turbayne (1970) believes that the human being has to learn to read visual elements; he calls this learning to read visual elements visual literacy training.

The connection between visual language and visual thinking was made by Flory (1978), Haber (1970), Anderson (1974), Paivio (1969, 1971), Samples (1976), Edwards (1979), McKim (1972), Arnheim (1969, 1977), Patten (1973), and others. Visualization, mental imagery, symbolic systems, visual thinking, dual coding, and mnemonic strategy should be taught as a part of visual literacy skills for creative thinking as well as for learning strategy and for storing and processing information.

Conclusions from research on visual literacy can be summaried as follows:

1. Perception involves the active processing of information by the individual (Murch, 1973).

2. An important aspect of perception is the ability to understand visual elements (Turbayne, 1970; Taylor, 1960; Dondis, 1974; Gregory, 1970).

3. Visual elements and their composition are thought to be analogous to verbal language elements such as letters and syntax, consequently the use of the term visual language (Debes, 1970, 1972, 1974; Barley, 1971; Turbayne, 1970; Flory, 1978; Ausburn & Ausburn, 1978; Lamberski, 1976; Whitsitt, 1976).

4. Visual language is a means to visual thinking through the study of symbolic systems, dual coding, mental imagery, and visualization (Arnheim, 1969; Bry, 1978; Canelos, 1980; Fleming, 1977; Flory, 1978; Majure, 1976; Paivio, 1969, 1971; Salomon, 1979; Samples, 1976; Samson, 1965).

5. Visual literacy is understanding visual language (Debes, 1970, 1972, 1975; Barley, 1971; Turbayne, 1970; Flory, 1978; Ausburn & Ausburn, 1978).

Images

Images arouse interest, motivate us to action, trigger emotions, and help us to recall past experiences. We can learn to read or understand visual language through the study of the visual event--its properties, elements, structure, syntax, subtlety and nuance. Through images we see hidden meanings, metaphors, analogies, categories, qualities, classifications, actions, and interpretations. If we are visually literate, we are able to understand (read) these visual events and get meaning and pleasure from them. Also, we can use visual language (objects, symbols, body language) to convey our own messages, thoughts, and feelings.

Advertisers are very adept at manipulating us with images (Key, 1976). Key wrote about the hidden implants of images in America's mass media and how these images program and condition our subconscious minds.

Many political groups have been able to use images to control and manipulate people through mass rallies, pageantry and visual symbols. Paul Joseph Goebbels, Hitler's Minister of Enlightenment and Propaganda, inspired people to fanaticism through Hitler's speeches and Nazi symbols and images, playing on people's emotions at the expense of their reason. Obviously we must guard against these visual and verbal manipulations. Effective education means that we can understand, use, and appreciate the wealth of visual information that is available to us; we must become literate in the use of visual information and the images we see and create in our own minds.

Visual Elements and Technology

Most of the major ideas and concepts of visual literacy can be traced to four areas of study: linguistics, art, psychology, and philosophy.

I have already discussed Arnheim's (1969) role with visual thinking from the art area and Turbayne's role in developing a philosophic analogy between verbal and visual language. I must mention the influence of Fries (1952) and Chomsky (1957, 1964, 1968, 1975) in the linguistics field, of Gregory's (1970) views on understanding and coping with perception from the viewpoint of psychology, and of Ihde's (1977) philosophical discussion of experimental phenomenology.

Fries (1952) believed that the study of verbal structure and elements would lead to verbal understanding and meaning. Similarly, visual literacy proponents believe that the study of line, shape, composition, color, syntax, movement, and sequences of images provides insight and meaning for the visual event. Thus, the visually literate person is concerned not only with the subject content of images, but also with the way the images are presented, the symbol systems used, and the description and the experience of the visual event. Salomon (1975) wrote that a symbol system is "a set of elements that refer in specific ways to domains of reference and are interrelated according to some syntactic rules or conventions" (p. 20). In his research, Salomon (1979) found that when a person learns, he has to deal with a medium's symbol system and that a learner gets different content and meaning from different symbol systems. A learner also must make different mental transformations and use different mental skills with various symbol systems (Salomon, 1979).

Noam Chomsky argued that natural verbal languages have two levels of communication: "surface" and "deep" structure (Gregory, 1970). "Surface" structure deals with the accepted rules of sentence construction without consideration for meaning. "Deep" structure involves meaning and depends on the meanings of various words in the sentence for a person to appreciate the meaning of the entire sentence. The same could be said of visual language. For example, color, direction of light, illumination, movement of people and objects within a frame, placement of people within a frame, and sequence of frames are used in cinematography to produce certain meanings on the screen. These are the elements that describe a visual event which affect our experience and hence our understanding. For example, Ingmar Bergman's film, "The Seventh Seal," an allegory of the Middle Ages, presented the viewer with variations of light and subtle gradations of tone from black to white (Bobker, 1979). The use of these tones gave the film a mood of foreboding, mystery, darkness, and despair. The deeper structure of the film was thus realized not only from the characters, plot, and acting (subject content), but from the dark images and mood created by the lighting element. Roman Polanski's film, "Chinatown," evoked the milieu of the 1930's, the era in which the story took place, through the use of yellow and brown tones that imitated the lighting style of films in the 1930's (Bobker, 1979).

In the area of psychology, the research on how we infer meaning has had a strong influence on visual literacy practice and theory. Gregory (1970) in his book, The Intelligent Eye, explored the physiological qualities of human perception. Through 3-D illustrations, ambiguous figures, and three-dimensional space, Gregory demonstrated that perception is a continual series of simple hypotheses about the external world based on our biological past and influenced by human invention of symbol systems. Gregory (1970) argues that verbal language and symbols may have limitations because of their elitist function. Technology has created highly specialized people who have their own languages and jargon. Scientific, bureaucratic, and elitist languages are creating illiterates by excluding those who lack the power of this specialized language and will not be able to think freely, creatively, and rationally in a world controlled by these highly specialized groups. Addressing another problem, Mitchell (1975) has decried the misuse of the English language by administrators, researchers, and bureaucrats who subject readers and listeners to obtuse, pedantic, or unintelligible reports, directives, and documents.

Technology necessitates that man develop newer, better methods and skills for handling information and preparing society for problem solving. Gregory (1970) says, "These situations demand different skills: different ways of ordering, handling, and seeing objects" (p. 166). Visual literacy offers an innovative approach to understanding our environment and preparing for the future so that we do not "create a world beyond the restraints of our intelligence: a world we cannot see" (Gregory, 1970).

Phenomenology and especially the experimental phenomenology of Ihde (1977) provides visual literacy with a new direction. As a philosophy, phenomenology departs from the traditional ways of doing and thinking. Ihde wrote, "It overturns many presuppositions ordinarily taken for granted and seeks to establish a new perspective from which to view things" (p. 17). Ihde describes two levels of knowing a phenomenon: one is a descriptive level of actually undergoing an experience and the other is thinking about that experience. In the first category, "straightforward" experience, a person perceives it as real, as taking place in the present tense and the action as taking place within the experience. With "reflective" experience or thinking about that experience, a person is stepping outside the experience or distancing himself from that experience to thematize and bring meaning to it. Through reflection we are able to grasp the meaning of our experience.

Visual literacy training offers the possibility for reflecting on preconceived actions or experiences through visual thinking. Actions, behavior, projects, and ideas have always been conceived in the future tense, or perhaps the future perfect tense, in terms of planning. Our belief systems--how we see ourselves and see future or projected actions--can certainly affect those actions. For instance, in holistic medicine patients are being taught self-healing techniques through visualization (Bry, 1978). It therefore seems plausible that not only can patients be taught to control their healing powers within their own bodies, but students can also use visualization techniques to teach themselves, prepare for future learning experiences, sharpen their memories, and improve self-image. We can rehearse our experiences as a kind of experiment and carry them to completion in our imagination. Dewey (1957) wrote:

> The experiment is carried on by tentative rehearsals in thought which do not affect physical facts outside the body. Thought runs ahead and foresees outcomes and thereby avoids having to await the instruction of actual failure and disaster.

I call this aspect of visual literacy: visual rehearsal.

Visual Rehearsal

It is important not only to use and understand visual information for communicating with others, but also it is useful to use the images in our minds as a means to improve our thinking. Some problems we encounter in our everyday lives call on powers that involve more than just verbal thinking. Visual thinking is an ability to create images in our minds to help us solve problems, interpret past experiences, relive moments, process and record meaning, and create new meaning. We can do this by visually reliving past experiences and rehearsing future experiences through mental imagery. Have you ever thought back on an incident in the past and wished you had done something else rather than acted as you did? Have you ever visually imagined the consequences of a particular behavior and decided against that behavior? Have you ever visually rehearsed a scene in your mind when you were about to ask for something important such as a raise? Visual rehearsal is a method for preparing for future experiences. Visually rehearsing tasks, skills, assignments, and activities beforehand can help make them less stressful and more successful.

For instance, visually rehearsing a speech before an imagined audience gives the speaker some confidence and practice. The speaker visualizes the seating arrangement, the faces and eyes of the audience, the ambience of the room, and the "image" he projects while he is delivering the speech. This is not a verbal rehearsal in the traditional sense but a visual experience that provides psychological readiness through a reflection upon images, a process much like the "movies of the mind" that Bry (1978) discusses in her book, Visualization: Directing the Movies of Your Mind. Visual rehearsal, together with verbal rehearsal, relaxation techniques, role playing, and imagining oneself in a future situation can help us to be better prepared for the future. Through reflection upon visual rehearsals, we can generate new meaning, image other possibilities, anticipate problems, detach ourselves from the here and now in order to experience potential future situations, choose the best strategies, and make a conscious effort to control and become responsible for future experiences. Bry (1978) wrote that "solutions to seemingly insolvable problems can be found by turning in to our inner images."

Motion picture films are an area of study particularly suitable for the understanding of visualization. Woodruff (1976) wrote about the process of film viewing, "the viewer goes through a process of re-editing the film in her/his own mind." Meaning for or understanding of a particular film depends on how the viewer splices together images or frames from the film in his own mind (Woodruff, 1966). Woodruff (1976) also found that people attended to that visual information in a film that they felt would benefit them in the future. If viewers select images that are meaningful to them, as Woodruff (1976) suggests, then they are making choices. Those choices are based on intention, experience, and agreement with personal beliefs. Therefore, the film viewer becomes a participant in the creation of the film event in his own mind along with the director and producer of the film. It is the responsibility of all of us to experience that film event or any other visual event critically, openly, and rationally; to maintain our freedom of choice, keeping in mind the intentions, motivations, and manipulations of the film director and producer.

Model for Understanding the Visual Event

I believe that understanding the visual event involves 1) the description of the visual event and 2) the experience of the viewer before, during, and after the event. The description involves the viewer's examination of the visual event from different perspectives and awareness of the structure and elements of the visual event. Description is similar to Chomsky's "surface" structure idea.

The experience of the individual is on three levels. The first level might be called "before-the-event" and this level is based on the background and previous experiences of the viewer. Paul Wendt (1962) said, "The meanings of pictures are not in the pictures themselves, but rather in what we bring to the pictures." The second level is the "straightforward experience" (Ihde, 1979), or the even-experience as it happens. An individual experiences a visual event and becomes involved with it; he attends to the experience; the experience is real. The third level is thinking about the experience or reflection on the visual event. Ihde (1979) summarizes:

> Straightforward experience, I could and did characterize: it was actional, involved, immersed in the project of the moment, narrowly focused and concentrated. My thinking about that experience, also an experience in the general sense, was a reflection or a thematizing of the straightforward experience.

A model for the visual event is provided in Figure 1. The premise is that a visual event has two levels of understanding: the surface (descriptive) level and the deeper (experience) level. Both levels are needed to comprehend and appreciate images and each affects the other. Perspective or point of view is necessary to examine the visual event, and perspective depends upon the background of the individual, the actual experience of the visual event in terms of amount of involvement, sensations, effects, etc., and the reflection afterward. Structure and elements also influence and are influenced by background, the actual experience and the reflection upon that experience. Schiller (1976) wrote:

> Being visually literate is an aptitude. It is a capacity to use imagery (visual and manipulative impression and expression) to facilitate, deepen and complete comprehension and conceptual learning. By conceptual learning we mean the awareness of describable properties, relationships and connections among all visible and invisible phenomena in human experiences.

SURFACE
LEVEL*
(DESCRIPTION)

PERSPECTIVE
- ☐ Time
- ☐ Space
- ☐ Conditions
- ☐ Assumptions
- ☐ Objective/Subjective
- ☐ Beliefs

STRUCTURE AND ELEMENTS
- ☐ Features
- ☐ Classification
- ☐ Quality
- ☐ Operation Analysis (changes)
- ☐ Analogy
- ☐ Metaphor
- ☐ Movement
- ☐ Symbol System

DEEPER
LEVEL*
(EXPERIENCE)

BACKGROUND
- ☐ History
- ☐ Knowledge
- ☐ Sociological
- ☐ Psychological
- ☐ Economical
- ☐ Intelligence

STRAIGHTFORWARD EXPERIENCE
- ☐ Character
- ☐ Involvement
- ☐ Reality
- ☐ Action
- ☐ Sensation
- ☐ Effect

REFLECTION
- ☐ Thinking about the Visual Event

* Levels are interactive ⇄

Figure 1. Model for understanding the visual event.

Teaching students to be visually literate therefore involves sharing mental strategies that use mental imagery, visualization, mnemonics, dual coding and symbolic systems to store information, interpret and develop new ideas, and solve problems. I suggest it is time to take another step in the development of creative thinking by including the research and theories on strategies and methods for understanding the visual event and thinking visually. Visual literacy is not only understanding and creating the visual event; it is a means to visual thinking and visual rehearsal.

Future theory development for visual literacy lies with phenomenological research because of its emphasis on doing, or what is often called "participatory experience." Martin Heidegger confessed that although he had thoroughly read the main works of Husserl, he was not able to understand phenomenology until he learned to "see phenomenologically" (Ihde, 1977). Visual literacy provides the training that enables us to "see" the visual event, whether it is the phenomenon of the external world or images we create in our own minds.

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CHILDREN'S PERCEPTION, RETENTION AND PREFERENCE OF ASYMMETRICAL COMPOSITION IN PICTURES

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The ability of children to understand and enjoy dynamic structures in visual images has often been underrated. Depending on their age and development, elementary school children have a greater level of comprehension of visual display (due primarily to their constant exposure to television) than we realize. Just because their responses are not in accordance with the established pictorial codes and compositional guidelines drawn by adults, does not mean that children cannot appreciate and learn from a dynamic and more complex composition. We often simplify the visual images used for class instruction to such an extent that children lose interest and the learning task is jeopardized. This over-simplification in developing visual aids for instructional purposes (drawings, photographs, slides, TV and film programs, etc.) has delayed the development of visual literacy in children. I suspect that the rules of picture composition that underline the aesthetic function of pictorial media apply equally when constructing visual messages for elementary school children. Furthermore, I am in total agreement with the advocates of hemispheric lateralization who suggest construction of visual images on the bases of the asymmetrical functions of the human brain.[1]

There are extensive empirical investigations on the dynamics of speech delivery, speaker's credibility, persuasion techniques, etc.[2] There are also studies dealing with pictorial factors in visual education.[3] However, studies concerning the dynamic structure of the visual image in instructional materials in education, such as asymmetrical placement of visual elements within the visual field, balance, framing, spacing, image size, form, color, etc., are scarce.[4] Studies on the importance of the distinct functions of the human brain (in processing visual cues) have only just begun to emerge.[5]

In their study on the effects of the left vs. right placement of visual images in regular newscasts, Metallinos and Tiemens[6] suggest that color, shape or form, size and directional lines (vectors) of pictorial cues are contributing factors affecting viewer perception, recognition and retention of visual images. The recognition of these pictorial cues as factors affecting the total composition of a visual display by elementary school children depends on two factors: (1) their level of cognitive development, and (2) the visual codes or production elements which are used in the visual message.[7] The perceptual and cognitive skills of children in elementary school (ages 9-11) are well developed, at least insofar as image size, color and shape or form are concerned.[8]

This study examines how children are influenced by (1) idiosyncratic shapes, (2) distinct colors, and (3) dynamic composition or asymmetric placement within the confines of a still photograph. In other words, placement of visual elements within the left or right side of the visual field will differentially affect children's perception, retention and preference. Furthermore, such distinctions are attributed to the particular shapes, colors and total synthesis of the visual displays.

Psychological studies on the perception of visual images[9] and neurological studies on the distinct functions of the left and right hemispheres of the human brain[10] have contributed greatly towards our understanding of the composition of images. Scientific evidences provided by such psychological and neurophysiological studies, have shown that viewers discriminate in their preferences of placement of visual materials within the visual field. The functions of the two hemispheres of the brain are asymmetrical and different. Trotter's[11] study on the hemispheric specialization of the human brain concludes that the particular functions of the right hemisphere, which controls the left side of the body, are "spatial/musical, holistic, artistic, symbolic, simultaneous, emotional, intuitive, creative, minor (quite), spiritual, receptive, synthetic, gestalt, facial recognition, simultaneous comprehension, perception of abstract, and pattern recognition of complex figures."[12] The functions of the left hemisphere, which controls the right side of the body, are "speech/verbal, logical, mathematical, linear, detailed, sequential, controlled, intellectual, dominant, worldly, active, analytic, reading, writing, naming, sequential ordering, perception of significant order and complex motor sequences."[13] These two lists point out the various perceptual, cognitive and compositional factors regarding shapes, colors and total compositional preference of visuals by television viewers, and they are of immediate concern to this study. Ragan's[14] argument for a taxonomy of right brain visual literacy outcomes is very important because the pictorial factors of shape, size, color of visuals, etc., are considered serious hemispheric lateralization research variables. The investigation by Herbener et al.[15] of the precise placement of visual elements within the frame, and Niekamp's[16] study of the factors affecting visual balance have produced inconclusive results. However, both are key studies in the development of visual literacy. Further investigation in this area is warranted.

Psychologists have observed how viewers perceive and recognize shapes, forms or patterns, starting with simple geometric figures (such as rectangles, circles, triangles, squares, etc.) and progress to more advanced, complex and ambiguous ones (such as multisided figures, three-dimensional objects, reversible figures, etc.).[17] Depending on such key factors as (a) duration of presentation, (b) the development of the perceiving individual and (c) the individual's familiarity with the pattern (shape or form), the order of preference and recognition is triangle, circle, square, parallelogram, rectangle, etc.[18] This empirical evidence has been observed and stated by Taylor, a renowned analyst of the visual arts,[19] and Hochberg,[20] a perceptual psychologist, both of whom maintain that the simpler and more stable the pattern, the more readily it is perceived and recognized. This implies that the extent to which a viewer perceives, retains and accepts the total synthesis of visuals within the field depends on the degree of simplicity of the particular visual.

The concern of this study, however, is whether or not similar patterns (shapes or forms) are perceived and/or recognized more readily when they are placed on the left visual field rather than the right, as long as the rest of the visuals within the frame remain constant. Trotter's list of hemispheric specialization,[21] and Ragan's taxonomy of right brain visual stimuli,[22] suggest that the perception of abstract patterns and recognition of complex figures (both of which are functions of the right hemisphere of the brain), are left side specializations. Can we infer, however, that such specialization and preference could be said for the left visual field of still pictures? This hypothesis needs to be tested.

Empirical studies on viewer perception, retention and total synthesis of colored images are also extensive.[23] Closely related to this investigation, is Alexander and Shansky's[24] experimental study on the influence of the three color attributes (hue, saturation and brightness) on viewer perception of the weight of colors. According to these authors:

> In addition to its information content, color is known to have certain affective qualities. We have investigated the assertion that colors have different apparent weights using a magnitude estimation technique. We find that the apparent heaviness of colors is an increasing function of chroma or saturation and a decreasing function of value or lightness. Hue has little influence on the apparent weight of color.[25]

The "darkness" and "lightness" of colors have been found to be contributing factors in viewer perception of hues.[26] Thus, blues appear to be lighter than yellows and yellows are lighter than reds. Is the apparent weight of color at all correlated with its preferred placement within the left and right visual field? An interesting observation has been made by Arnheim who concludes that:

> Since shape and color can be distinguished from each other, they can be also compared. Both fulfill the two most characteristic functions of vision. They convey expression, and they allow us to obtain information through the identification of objects and happenings.[27]

This relationship is also observed by Bloomer who states that:

> Context is the most influential frame of reference for color perception. A single swatch of color will seem brighter, duller, darker, or changed in hue by changing only the context in which the color is seen.[28]

In evaluating the empirical findings on the subject of color preference, Arnheim concludes that color preferences are related to complex social and highly personal factors, which observe the experimentation and bias the results. He suggests that " ... it might be preferable not to experiment with colors 'as such,' but to relate them to specific objects as is done in the field of market research."[29] The perception of colors, their retention, and their preference, have not been reliably determined. Consequently, viewer perception, retention and preference for colors due to their placement within the visual field requires further testing. Numerous experiments conducted by such interested groups as physicists, paint manufacturers, artists, interior decorators, neurologists and, of course, psychologists, have been done,[30] and these seemingly superfluous attempts by researchers have been summarized by Boynton as follows:

> Unfortunately, data from many studies, where global judgements of color preference have been obtained, seem meaningless. In the first place, because color is perceptually attached to objects we do not necessarily have a favorite color that transcends all circumstances; red may be fine for fire engines, but not for the livingroom wall. Second, colors typically exist in more than one part of visual space at a time. The appearance of a color depends upon its surroundings and so do color preferences.[31]

Important differences in viewer perception, retention and preference of colors due to their left or right placement within the visual field were expected, and a hypothesis and a treatment testing such probable differences were deemed necessary in this study.

Comparing the effects of (1) full-background still visuals on the TV screen, versus no background visuals at all, and (2) corner screen locations of visuals (opposite a live newscaster), as opposed to no visuals at all, Coldevin's[32,33] studies on television newscast strategy and Baggaley and Duck's[34] studies on the effects of adding background, have revealed some very important conclusions focusing on the variables involving the present investigation. According to Coldevin: "When location establishment static visuals are used to enhance a speaker's delivery (when he is positioned centrally), a full screen is more effective background display strategy."[35] Furthermore, these studies suggest that "when symbolic presentations are used to enhance a news reader's delivery, a corner screen location is the more compelling background display strategy."[36] These studies did not, however, concern themselves with the asymmetrical placement of such still visuals and their preferred placement (left or right) within the visual field which concerns this study.

Although the review of literature suggests that the left visual field is more appropriate for the presentation of visual information, there is a disagreement among constructors of visual messages regarding the asymmetry of the visual field.

Hypotheses

To test the effects of placement within the visual field of still TV pictures on viewer perception, the following hypotheses were tested:

1. Placement of visual elements on the right or left side of the visual field (still TV pictures) does not significantly affect children's ability to perceive and to readily describe their shapes (forms or patterns).

2. Placement of visual elements on the right or left side of the visual field (still TV pictures) does not significantly affect children's ability to perceive and to readily describe their color.

3. Placement of visual elements on the right or left side of the visual field (still TV pictures) does not significantly affect the retention of visual content.

4. Placement of visual elements on the right or left side of the visual field (still TV pictures) does not significantly affect children's preference of their general composition.

Experimental Materials

The stimulus materials utilized to test the four experimental hypotheses were 20 slides made from an original videotape containing news stories. The slides used to test Hypothesis #1 (shape of visuals), Hypothesis #2 (color of visuals) and Hypothesis #4 (preference of total synthesis of visuals) captured the newscaster in a medium close-up facing the camera. His image occupied either the left or right side of the visual field. The other side of the slide, opposite the newscaster, was proportionally balanced with the placement of a specially designed visual to illustrate the content of the news story. The illustrations were 10 different visuals, simple pictures, faces, drawings, objects, that formed several geometric figures such as circles, rectangles, triangles, etc., alternately placed on the left and right side of the visual field. Variables which could have distracted the children were kept constant.

The stimulus materials (test items) used to test Hypothesis #3 (viewer retention of the visual stimuli) consisted of 10 slides. Each slide contained five visuals, the visual originally used to symbolize the content of the news story and four additional ones which were similar to the original. They depicted the same story or concept and were randomly presented to the subjects.

Subjects and Procedures

Four tests were prepared and administered to a total of 48 elementary school children (aged 9-11) from a normal suburban elementary school in Montreal. Tests were administered successively to groups of 12 subjects at a time in one single session which lasted 10 minutes. An ordinary classroom was prepared to meet the prerequisites in projection, viewing distance, angle of observation, image size, timing of visual display, etc.[37]

The test for Hypothesis #1 (perception of predominate/outstanding shapes and forms) was multiple choice. It consisted of ten items constructed from responses gathered through pre-testing of the shapes, forms or patterns contained in the visuals of the ten slides. The image of the newscaster remained constant. Each slide was projected for 10 seconds with an interval of 15 seconds blank light to allow the subjects to mark their choices. The subjects were informed that they would see 10 slides with a picture of a person (newscaster) with a drawing beside him. They were asked to mark the shape in the drawing that they thought was the most important.

The test for Hypothesis #2 (viewer perception of predominant/outstanding colors) was also a multiple choice one consisting of a total of nine possible items constructed from responses gathered by pretesting of all possible colors contained in the visuals of the 10 slides. The colors of the background and the image of the newscaster were excluded. Since the same visual stimuli were used for the two tests (Hypothesis #1 and Hypothesis #2), the subjects were instructed to choose the predominant colors immediately after marking the predominant shape. Thus, the duration of the visual display remained constant.

The test for Hypothesis #3 (viewer retention of visual stimuli) provided five choices in each slide, one of which was the correct one. Each slide was randomly shown on the screen for 10 seconds with a 15 second interval of black light during which the subjects marked their choices on a five item choice test.

The test for Hypothesis #4 (viewer general preference for the total composition of the original 10 slides) consisted of a five step preference scale ranging from "don't like at all" to "like very much." The testing procedure used previously was also applied here.

Analysis

A _t_ ratio for related measures[38] was used to test for significant difference between viewer perception, retention and preference of visuals placed on the right side of the visual field and those placed on the left. The .01 level of confidence was set as the level for rejecting the null hypotheses.

Results

The _t_ ratio result of 4.51 obtained from the first test was significant beyond the .01 level of confidence. Consequently, the hypothesis that the children's ability to readily perceive shapes (forms or patterns) is influenced by their particular position within the visual field, supported the theory of asymmetry of the visual field. Table 1 shows the summary of the scores obtained from the first test.

Table 1

A Summary of All Scores Obtained from
Each of the Four Hypotheses

Tests	Left Placement	Right Placement	N	Mean (L)	Mean (R)	t
Perception of Shapes Test #1	107	64	48	2.23	1.33	4.51**
Perception of Colors Test #2	77	60	48	1.60	1.25	2.24*
Retention of Visuals Test #3	247	167	48	5.15	3.48	11.13***
Preference of Total Synthesis Test #4	929	569	48	19.35	11.85	10.87***

** $P < .01$
* $P > .01$
*** $P < .001$

The t ratio result of 2.24 obtained from the second test was not significant. Consequently, the hypothesis that the children's ability to perceive certain colors more readily and distinctively due to their placement (right or left) within the visual field was not confirmed. The major contributing factors for these results could have been the visual stimuli. The background colors of the slides made for the TV news program were predominantly blue. Blue, as a base color, might have had a direct influence on the children's ability to differentiate the various outstanding foreground colors of the visuals. Table 1 shows the summary of the scores obtained from the second test.

The t ratio result of 11.13 obtained from the third test was significant beyond the .01 level of confidence. It confirmed the hypothesis that children are able to retain the visuals that are placed on the left side of the picture more readily than those placed on the right. Table 1 shows the summary of the scores obtained from the third test.

The t ratio result of 10.87 obtained from the fourth test was also significant beyond the .01 level of confidence. It confirmed the hypothesis that children preferred the composition of slides in which the visuals were placed on the left. This result is consistent with the findings of previous studies using adults.[39] Table 1 shows the summary of the scores obtained from the fourth test.

Conclusions

Considering the limitations of this study, the results suggest that dynamic structure, or asymmetrical composition, of visual elements within a picture field are preferred by children aged 9-11. Placement of visuals on the left side of the picture field seem also to be preferred by young viewers. Furthermore, visuals which display interesting shapes, forms or patterns are perceived and recognized more readily.

There are some limitations to this study that warrant further investigation and research. First, the stimulus materials (10 slides) made to test Hypothesis #1 (shape, form), Hypothesis #2 (color), and Hypothesis #4 (total synthesis) could have been more distinctive, clear and of greater diverstiy. Also, live action would be better than stills. Second, a control group to compare effects of the opposite placement of visual materials within the field could be employed. Third, greater control and measurement of the visuals in terms of their particular geometric figures must be applied.

The findings of this study show strong implications for establishing a unified policy regarding visual literacy in children. Such a policy would underline those carefully studied and empirically tested variables (visual media factors) which will comprise the language of visual communication media.

NOTES

[1] Tillman J. Ragan, "Visual Literacy and the Brain," paper presented at the 1977 National Convention of the Association for Educational Communication and Technology, Miami Beach, Florida, April 25-29, 1977, p. 3.

[2] See for example James C. McCroskey et al., An Introduction to Interpersonal Communication (Englewood Cliffs, N.J.: Prentice Hall, 1971).

[3] See for example Lida M. Cochran et al., "Exploring Approaches to Researching Visual Literacy," ECTJ, 28:4 (Winter 1980), pp. 243-266, W. Howard Levie, "A Prospectus for Instructional Research in Visual Literacy," ECTJ, 26:1 (Spring 1978), pp. 25-36.

[4] See for example Nikos Metallinos, "Empirical Studies in Visual Communication: Experimental Studies on TV Composition," paper

presented at the 12th Annual Conference of the International Visual Literacy Association, Washington D.C., November 8, 1980.

[5] A good review of studies on the functions of the human brain is cited in Peter A. Anderson et al., "Implications of a Neurophysiological Approach for the Study of Non-Verbal Communication," *Human Communication Review*, 6:1 (Fall 1979), pp. 74-89.

[6] Nikos Metallinos and Robert K. Tiemens, "Asymmetry of the Screen: The Effect of Left Versus Right Placement of Television Images," *Journal of Broadcasting*, 21:1 (Winter 1977), pp. 21-33.

[7] Steve R. Acker and Robert K. Tiemens, "Children's Perception of Changes in Size of Television Images," *Human Communication Research*, 7:4 (Summer 1981), pp. 340-346.

[8] Jean Piaget, *The Construction of Reality in the Child* (New York: Ballantine Books, 1974), pp. 29-91.

[9] See for example the numerous studies recorded in Ralph Norman Haber (ed.) *Contemporary Theory and Research in Visual Perception* (New York: Holt, Rinehart and Winston, Inc., 1968).

[10] See for example the numerous studies recorded by Robert E. Ornstein (ed.) in *The Nature of Human Consciousness: A Book of Readings* (San Francisco: W. H. Freeman and Co., 1968). Also, see reference note #5 above.

[11] Robert J. Trotter, "The Other Hemispheres," *Science News*, 109:2 (April 3, 1976), pp. 218-223.

[12] Trotter, p. 219.

[13] Trotter, p. 219.

[14] Ragan, p. 10.

[15] Gerald F. Herbener et al., "Dynamics of the Frame in Visual Communication," *Educational Communication and Technology Journal*, 27:3 (1979), pp. 83-88.

[16] Walter Niekamp, "An Exploratory Investigation Affecting Visual Balance," *Educational Communication and Technology Journal*, 29:1 (Srping 1981), pp. 34-48.

[17] Gerald M. Murch, *Visual and Auditory Perception* (New York: The Bobbs-Merrill Co., Inc., 1973), pp. 122-149.

[18] Murch, p. 123.

[19] John F. A. Taylor, *Design and Expression in the Visual Arts* (New York: Dover Publications, Inc., 1964), p. 19.

[20] Julian Hochberg, Perception (2nd ed.) (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1978), pp. 131-149.

[21] Trotter, p. 219.

[22] Ragan, p. 10.

[23] See for example, the works of Faber Birren in his editions of Color Psychology and Color Therapy (New Hyde Park, N.Y.: University Books, Inc., 1961) and Color in Your World (New York: The MacMillan Co., 1962). Also, see Leo M. Hurvich and Dorothea Jameson's The Perception of Brightness and Darkness (Boston: Allyn and Bacon, Inc., 1966).

[24] Kenneth R. Alexander and Michael S. Shansky, "Influence of Hue, Value, and Chroma on the Perceived Heaviness of Colors," Perception and Psychologists, 19:1 (1976), pp. 72-74.

[25] Alexander and Shansky, p. 72.

[26] Elizabeth Pinkerton and N. K. Humphrey, "The Apparent Heaviness of Colors," Nature, 250 (1974), pp. 164-165.

[27] Rudolph Arnheim, Art and Visual Perception (Berkeley: University of California Press, 1969), p. 323.

[28] Carolyn M. Bloomer, Principles of Visual Perception (New York: Van Nostrand Reinhold Co., 1976).

[29] Arnheim, p. 334.

[30] Julian Hochberg, "Perception, Color and Shade," Experimental Psychology (3rd ed.), edited by J. W. Kling and L. A. Riggs (New York: Holt, Rinehart and Winston, Inc., 1971), pp. 395-474.

[31] Robert M. Boynton, "Color Vision," Experimental Psychology (3rd ed.), edited by J. W. Kling and L. A. Riggs (New York: Holt, Rinehart and Winston, Inc., 1971), p. 315.

[32] Gary O. Coldevin, "Experience in TV Presentation Strategies: Effectiveness of Full Screen vs. Corner Screen Location Establishment Background Visuals," Educational Broadcasting International, 11:2 (1978), pp. 17-18.

[33] Gary O. Coldevin, "Experiments in TV Presentation Strategies: Number 2," Educational Broadcasting International, 11:2 (1978), pp. 158-159.

[34] Jon P. Baggaley and S. W. Duck, "Experiments in ETV: Effects of Adding Background," Educational Broadcasting International, 7:4 (1974), pp. 1-4.

[35] Coldevin, "Experiments in TV Presentation Strategies: Number 2," p. 159.

[36] Coldevin, "Experiments in TV Presentation Strategies: Number 2," p. 159.

[37] See for example, Gene L. Wilkinson's study on "Projection Variables and Performance," *Audio/Visual Communication Review*, 24:4 (Winter 1970), pp. 413-435 and Tom Mayer's "Tech Memos: TV Monitor Placement," *Pacesetter*, 6:1 (Summer 1973), p. 4.

[38] James L. Bruning and B. L. Kintz, *Computational Handbook of Statistics* (Glenview, Ill.: Scott, Foresman and Co., 1964), pp. 12-15.

[39] Metallinos and Tiemens, p. 31.

VALIDATING THE AESTHETIC ELEMENTS IN PHOTOGRAPHS: THE EXISTENTIAL VIEW

by

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Is there any consensus of opinion that an aesthetic element is visible in the acclaimed work of well-known photographers? Are these aesthetic or abstract concepts present in photographs if they are not generally recognized? Do artists convey their meaning to the general public or only to those who have been educated, trained or who perhaps intuitively understand the art process? Finally, what type of education is necessary to encourage the development of this intuitive and creative process?

Background

The importance of photography in the process of communication and as an art form is receiving wider recognition. Susan Sontag's (1974) essays concerning the moral and aesthetic implications of photography as a tool of the new mass culture, and Barthes' (1977) description of the reductiveness of the photographic message both reflect the philosophic importance of the photographic concept. In the social sciences, Jon Wagner (1979) has collected essays which detail the use of photography as a tool used in research, teaching, and visual forms of language. Cameras, which were once in the possession of the fortunate few, are now owned by thousands of young children. Popular interest in photography as a medium for communication has mushroomed.

Unfortunately, instruction in photographic communication has not kept up with the development of the medium. Technical information concerning use of the machine and the production of clear images is readily available. Less understood is the aesthetic potential of the photograph. In an effort to begin to uncover the potential communicative ability of the still photograph, this study was undertaken to look at aesthetic qualities existing in the work of well-known photographers. Once the aesthetic qualities were identified and isolated, it was postulated that concepts would emerge which could then be incorporated into the aesthetic component of photographic instruction. In an earlier study (McIsaac, 1980) it was discovered that the inclusion of aesthetic instruction allowed students of low spatial ability to improve their technical competence with a camera significantly. The present study was an attempt to further analyze aesthetic concepts in photographs and to develop an evaluation instrument for validating certain aesthetic concepts found in the work of well-known photographers.

For this study, aesthetic education has been defined as the process of helping one to appreciate intrinsic properties of objects. Art theoreticians have stated it in various ways. Broeckx (1979) has identified these intrinsic aesthetic properties as sensory (color and shadow), formal (structure), and expressive (expression of rest or storminess). The aesthetic can then be defined as the universal truth in an object which evokes an emotional response.

An evaluation instrument was designed in which students were asked to match a photographer's aesthetic concept with one of four photographs. The question of interest was whether a significant proportion of students would recognize the photographer's work from what he/she said about the work.

Method

Photographers were selected whose photographs, in their opinion, embodied certain aesthetic concepts. Artists were included who are recognized by their peers to be outstanding representatives of excellent work in the field of photography. A balance was sought between traditional and modern photographers, between males and females, and from work spanning the period 1900-1980. A variety of rational as well as intuitive approaches were represented. Some artists were documentary or straight photographers. Others were pictorialists, therefore, more abstract and metaphoric. A cross section of techniques, styles and time periods was selected.

The photojournalism of Margaret Bourke-White, social commentary of Dorothea Lange, unique woman's perspective of Judy Dater and straightforward intimacy of Diane Arbus represented points of view as varied as the women's interests. Men were represented by the same diversity of interests and purpose. Atget's melancholic Paris of the 1900's, Cartier-Bresson's dynamic juxtaposition of events, Bullock's sense of the ethereal and Wegee's compulsion to portray the ugly raw emotions he found in urban scenes all reveal the widest variety of themes, historical periods and approaches to the medium. Two items from each of ten photographers were selected as key photographs.

An evaluation instrument was designed and distributed to 121 undergraduate education majors. The instrument consisted of two parts. In the first section, biographical data such as age, sex, previous experience with photography, previous art background and interest in photography were assessed. In the second section one key photograph was shown with three distractors. Black and white photographs were selected, both for the key photograph and for distractors, so that color would not be a confounding variables. Photographers were selected whose work evoked the most consistent response and whose body of work could be summarized.

Statements were drawn from each photographer's individual philosophy and were read, in their own words. In each case the central theme of the work was abstracted to verbally convey the essence of the main theme or idea found in the photographer's images. For example, Henri Cartier-Bresson expressed it thus: "Subjects are always moving in time. My photographs attempt to capture the one moment in which the elements of motion are in balance, the decisive moment." Students were asked to select which of the four following photographs best illustrated the stated concept. Four black and white photographs were then shown (Figure 1) and the viewer asked to choose the one which most clearly reflected that concept. It was emphasized that although one of the photographs was done by the photographer who expressed the idea, there might be other photographers who communicate that same idea. An individual's perceptions are relative and selective. Subjects were told that the investigators were looking, not for a correct answer, but for a consensus opinion that one of the images, does indeed communicate the given concept to most people.

Distractors were selected from the work of professional photographers and chosen to represent the same idea as that expressed by the key photographer.

Results

Descriptive information was obtained from evaluations of photographs done by 121 university undergraduate education majors. Demographic information was evaluated to determine the profile of the group. Eighty-two percent were females and 45 percent were between the ages of 22 and 30. Sixty-seven percent said they had no art background, no experience with photography and had not had an art course since high school. Cultural backgrounds were 15 percent Hispanic, 8 percent Native American, 68 percent Anglo, 3 percent Black American and 7 percent Oriental.

Distribution of scores and item analyses of the selection of photographs for the group as a whole revealed that there was a normal distribution of scores. The test was substantially difficult. Out of 20 questions the lowest score for associating the key photographer's image with his/her verbal description was two correct. The highest score was 14 correct. Two sets of photographs were shown for each key concept. Since the concept was abstract and was audiotaped for evaluation, well developed listening skills were required. Scores remained consistent between the first and second set of photographs indicating no loss of concept retention due to lapse of time. When questioned as to whether they would have preferred to see the concepts written down so they could refer back to them rather than listen to them, responses were evenly divided. Some indicated that listening enabled them to relax and concentrate. Others felt that it would have been helpful to be able to refer back to the original idea. Five of the 20 items received 40 percent or greater consensus on the key photograph, with other answers evenly distributed among the three distractors. This represented the work of five different photographers. In no case were both of the key photographs for a single photographer chosen by 40 percent or more of the subjects. Eight of the items received consensus responses of 40 percent or more on one particular distractor

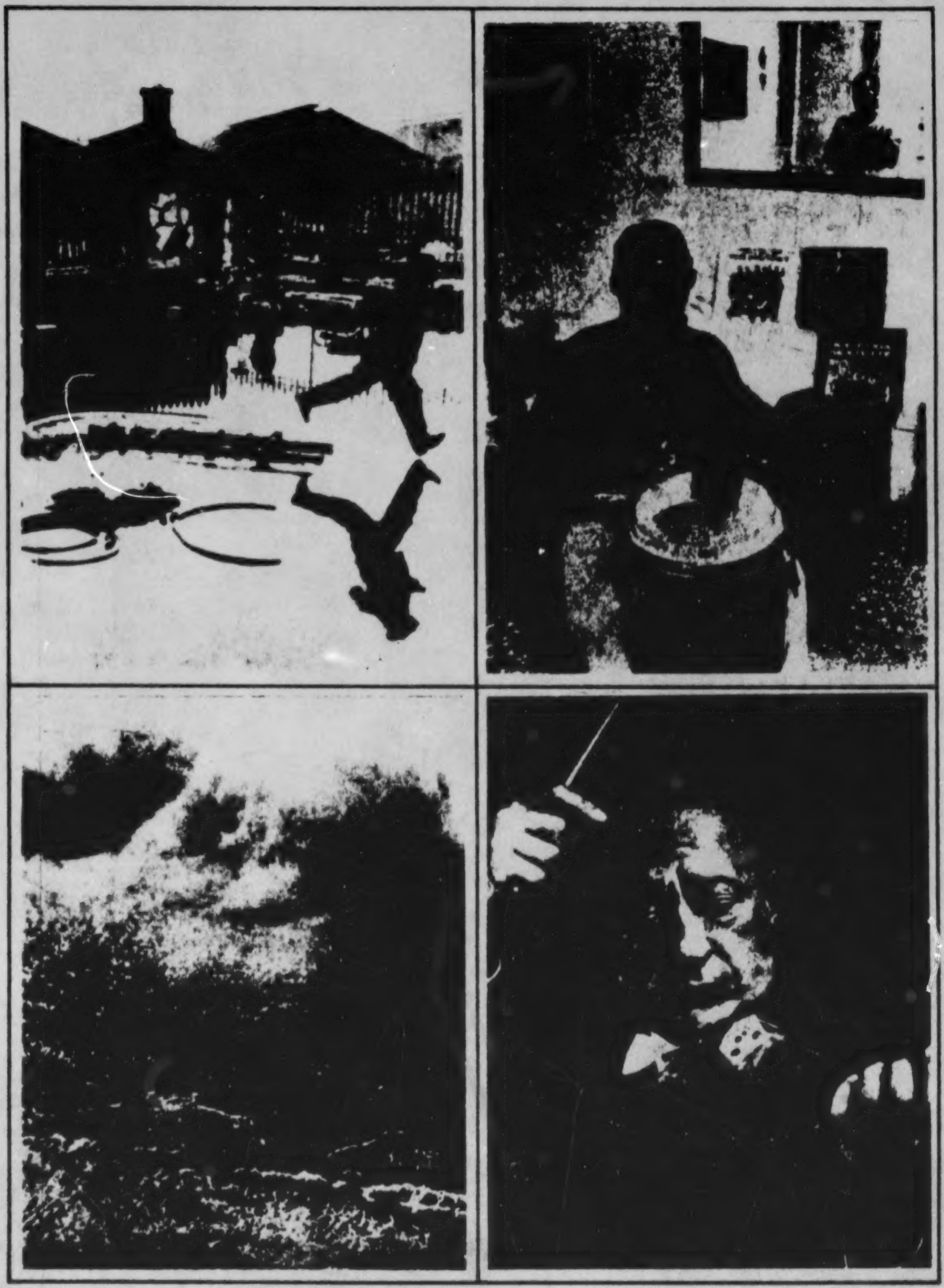

Figure 1. Sample Item of Four Photographs.

item, indicating that to at least 40 percent of the respondents that particular image communicated the concept more clearly than the key image.

When the data was analyzed in terms of students with art and photography background (33 percent) versus those without art and photography background (67 percent), the pattern became intensified. Art and photography students from this sample revealed the same normal distribution of scores as the larger combined group with the same mean score of seven. Their scores intensified the consensus opinion of the larger combined group, with fewer scores scattered among the nonsignificant distractors.

Conclusions and Recommendations

Although perception is selective and relative, aesthetic concepts can be communicated visually, as was demonstrated by consensus scores. The key photographs in this study were not, however, communicated clearly and unambiguously to the general audience. Students with an art or photographic background had the same difficulty in selection as did students with no art background. Fewer art students selected random distractors, and they had a higher percentage of agreement on key concepts and significant distractors. In the cases in which there was a significant distractor, one which a large proportion of students selected, more students with an art background chose the significant distractor than the key photograph.

Validation of the concepts which emerged from this study should be done using art professionals as subjects. Further inquiry will reveal whether art professionals continue to build on the consensus opinions of the general audience or not. Correlations obtained from this type of data will indicate whether there is a relationship between art background and recognition of aesthetic concepts in these selected photographs. There was a small but perceptible trend in that direction among undergraduate students with some art background. The resulting information will then indicate whether instruction would be beneficial in heightening aesthetic consciousness. If art professionals have a greater degree of recognition than the previous two subgroups, then the need for instruction would be indicated. If this is the case, then photographers are indeed communicating to an elite group of visually educated or visually sophisticated people who have learned to differentiate among difficult visual abstract concepts. In this case, instruction can be designed to assist students in becoming sensitive by raising their awareness of ways of structuring the photographic message and by using strengths of the medium.

It is not the photographer's intent which is important. It is in the selective perception of the viewer that the significance lies. By beginning to look at whether the message is communicated we can subsequently both intuitively and systematically design instruction in photography which will go beyond technical knowledge alone and will lay the groundwork for photography as a language tool.

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SUMMARY OF THE SESSION "MEANINGS PHOTOGRAPHS DEPICTING FAMILY UNITS HAVE FOR RESPONDENTS"

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The essence of the presentation was to generate audience involvement in discovering hidden cues applied to photo-therapy and personal responses to projected photographs that depict different family units. A verbal word game that led into a visual magic effect preceded showing of the photographs.

Even among sophisticated respondents, people tend to read many inferences from a few cues rather than make a few observations from many cues. Projected photographs of the Kennedy family and the captured Pueblo crew have been used in a photoanalysis study procedure. The procedure was designed to find the meanings that people assign to photographs that depict different family units and to identify and classify their responses.

The nature and character of responses were classified by the DES Ph O R model which recorded all responses into one of six categories. They were deductive, evaluative, subjective, photographic or technical, objective and reflective meanings.

In the first study a wide spectrum of male and female respondents between the ages of 18 and 50 years, who lived or worked in Southern California or the greater New York City area, verbalized their meanings in open-ended unstructured and semi-structured interviews in casual settings. Responses were tape recorded and then transcribed.

A second study involved undergraduate and graduate college students who wrote responses as the pictures were projected on a screen. Newspaper readers participated in a third study by responding to photographs and instructions which were printed in a nationally syndicated photography column. Another aspect of the investigation included the study of responses by schizophrenic outpatients from a San Diego clinic.

Empirical case information also was collected to substantiate the recognition of photography as its own event as opposed to the notion that photography simply records an event. The presentation included showing photographs of four family units (Figure 1) representing a variety of age, social, ethnic, religious, economic, and situational heterogeneous qualities, as well as an explanation of their selection and an opportunity for conferees to participate in the analysis procedure. Dr. Richard Zakia's valuable participation added to the impact and value of the analysis portion of the session.

Figure 1. Four Family Photographs.

VARIABLES IN THE ENVIRONMENT FOR PRE SCHOOL TELEVISION VIEWING

by

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The Problem

In only a few decades television has altered the lifestyle of children. There is no doubt that television has the potential to teach. This has been demonstrated by studies on Sesame Street, the pioneer and most well-known of children's television programs (Ball and Bogatz, 1971; Paulson, 1974). But many parents and educators voice a consistent complaint--that television is a passive learning tool; it's addictive in nature and an unfair competitor to reading and activities that stimulate the mind and hands (Hechlinger, 1979; Gotz, 1975).

On the preschool level the vast majority of our children spend an average of at least four hours per day watching television. By the time a child in the United States enters first grade, he is likely to have spent more time watching television than he will spend in the classroom during his entire four years at college (Loney, 1971). Children of all ages spend more of their time with television than with any other medium (Stein, 1972).

Through long exposure to television children are sophisticated beyond their years and are able to recognize and react to a number of stimuli such as shifts in time, overlapping of images, and a variety of situations ranging from cartoons to documentaries (Children's Television Workshop, 1976). Television's blanketing of the globe has a tendency to make the entire world familiar through the audiovisual experience (McLuhan, 1973).

Yet with all of this sophistication, educators and developmental psychologists have questioned how well television can teach young children without direct interaction with other learning materials (Winn, 1977: Schramm, 1977). We are far from understanding how children learn from television. They don't always sit and soak up information passively. Children can be observed tracing letters in the air with their fingers, talking back to actors and moving their bodies with the music (Fowles and Vogat, 1974).

We now have variety in commercial and educational programs available for children (Clark, 1978). A great deal of attention has been focused on issues related to children's programing. Relatively little consideration has been given to developing guidelines for use of children's programing or for dissemination of the guidelines to parents and teachers of preschoolers. There is a need to investigate variables which establish the home environment for television viewing by preschoolers.

The Variables

Two recent reviews of research on child development conclude that television is more than a communicator of content; indeed, television organizes and modifies the home environment (Atman and Wohlwill, 1978). Another conclusion is that parental variables, such as expectations and provision for stimuli, affect the television viewing environment (Marjoriebanks, 1979).

Since most preschool children spend the majority of their television watching time at home, the home is the environment in which habits for learning from television can be established. Some of the variables which influence learning from television have been clearly identified, such as the mediating effects of adults and peers. Other variables seem important, but their effects are not well researched. For example, the importance of toys within the television viewing environment is not established.

One way to improve the intellectual opportunities open to all children is to educate parents so that they can help preschool children establish attitudes and habits which will make television a positive influence on their learning. It may be that children from homes characterized by a positive environment for the formation of television viewing habits have an advantage when they enter school: the advantage of social habits and learning skills gained through interaction with television in a positive home context (Kifer, 1976).

The federal government recognizes the power of television as an agent of change in our society. In March 1978, Richard E. Clark (and six of his colleagues) submitted to the National Institute of Education a proposed research agenda on schooling and leisure time uses of television. Of particular interest to the National Institute of Education was the role of federal policy and programs in addressing the concerns raised by various groups, e.g., parents, consumers. The proposed research agenda was a collaborative effort with three NIE representatives (Clark, March 1978). One of the proposed project areas was home environment. In his excellent summary of the best ERIC documents on children's television (Clark, 1978), Clark includes a section of references on how teachers and parents can help children learn from television. He reports very few studies related to preschool children. He does report a study by Epstein and Bozler (1976) which used a telephone survey of middle class parents of preschool children. Several researchers (Willis, 1975; Television and Children: Priorities for Research, 1975; Clark, 1978) have expressed concern that relatively little study has been done about the mediating effects of the family context on the development of television viewing habits.

The family context for television viewing is defined as: the specific home variables (e.g., viewing habits and situations, attitudes and preferences, behaviors and activities) and the relationships among these variables which influence the development of a child's television viewing habits by creating an environment. These home variables have been identified by a review of the literature. In order to meet intellectual, emotional and social needs of their child through television, parents must manage these variables.

Variables in the family context separate into two types: direct and indirect. The first type (direct) includes those variables that can be controlled (e.g., situation, habits). The indirect variables are those that are given such as educational or socioeconomic levels.

Although there are studies with lower income and middle class families, the literature on educational level of parents is sparse (Abel, 1972). Socioeconomic level is likely to be important in contradictory ways. The fewer television sets the more learning there is likely to be because of the presence of an adult. The more reinforcing stimuli the more likely skills are to be developed (Solomon, 1979).

Educational level is likely to be important because it can give evidence of the ability to create a more balanced life. A balanced life is used to mean one that includes social as well as conceptual emphases, active as well as more passive learning, real as well as mediated experiences, rational as well as emotional models, interaction with different ages, visual as well as verbal learning and broad interests (Moore, 1976).

Viewing environments that are balanced provide for specific activities. In this paper, using television in a balanced way will be used to mean:

a. interacting with television programs through other media or through people.

b. viewing a variety of subjects and styles, e.g., fantasy and reality, social and cognitive.

c. limiting television time so that the viewer has real as well as vicarious experiences and active as well as passive experiences.

d. viewing television with people of all ages so a broad spectrum of reactions is shared.

Recommendations for using television in a balanced way are offered by Josette Frank in Television: How to Use It Wisely with Children published by the Child Study Association of America in New York in 1969. Recommendations include interspersing play activity, controlling programs, limiting viewing, encouraging other facets of life, e.g., social involvement, sports, expressing attitudes, watching with children and giving children responsibility for wise television viewing.

Investigating the Variables

Among the ways to investigate the family context are empirical or descriptive research and reviewing the literature. Models for empirical research are given in many of the articles in the list of references (Wolf, 1975; Lorch, Anderson and Levin, 1979).

Before some of the salient points revealed by the review of literature are presented, let's explore an approach to descriptive research in this area.

One approach to gathering descriptive data would be surveys of parents and children through interviews. Appendix I, Survey on Variables, is an interview used by the writer for descriptive research in this area.

Ways to phrase questions to children on television viewing are suggested in Communicating with Children Through Television (CBS, May 1977). In an earlier article, the author reviewed the literature on the basis for learning from visual experiences (Seels, 1979). The questions for children are based on that review.

In a review of the literature on incidental learning from television, George Comstock concludes that television's influence requires both laboratory type experimentation and collection of data from real life in order to determine causation-existence (Comstock, 1978).

Known Effects

Figure 1, Relationships Among Variables, illustrates how the home context can influence habits and attitudes towards television viewing. We know, for example, that the family routine establishes the viewing habits of preschoolers, not vice versa (Frazer, 1976).

Among the difficulties one encounters in studying such effects are (a) the sparseness of research around specific topics and (b) the impossibiltiy of discretely categorizing findings. A finding is as likely to be related to attitudes as to preferences. Much is known about the viewing situation. Television's effects depend on mediation by an adult (Singer and Singer, 1974). The adult helps extend the child's attention span to meet the program's demands.

The role of television in facilitating social interaction is also well documented (Leifer, Dorr, et al., 1974; Hearold, 1979). Peer encouragement or discouragement of prosocial response is an important variable in the viewing situation (Tannenbaum, 1976).

Some information is available about children's responses to programming (Davidson, Liebert, Neale, 1973). Children attend well when there are short segments, variable pace, special effects and high levels of action (Huston-Stein and Wright, 1977). Children attend more to

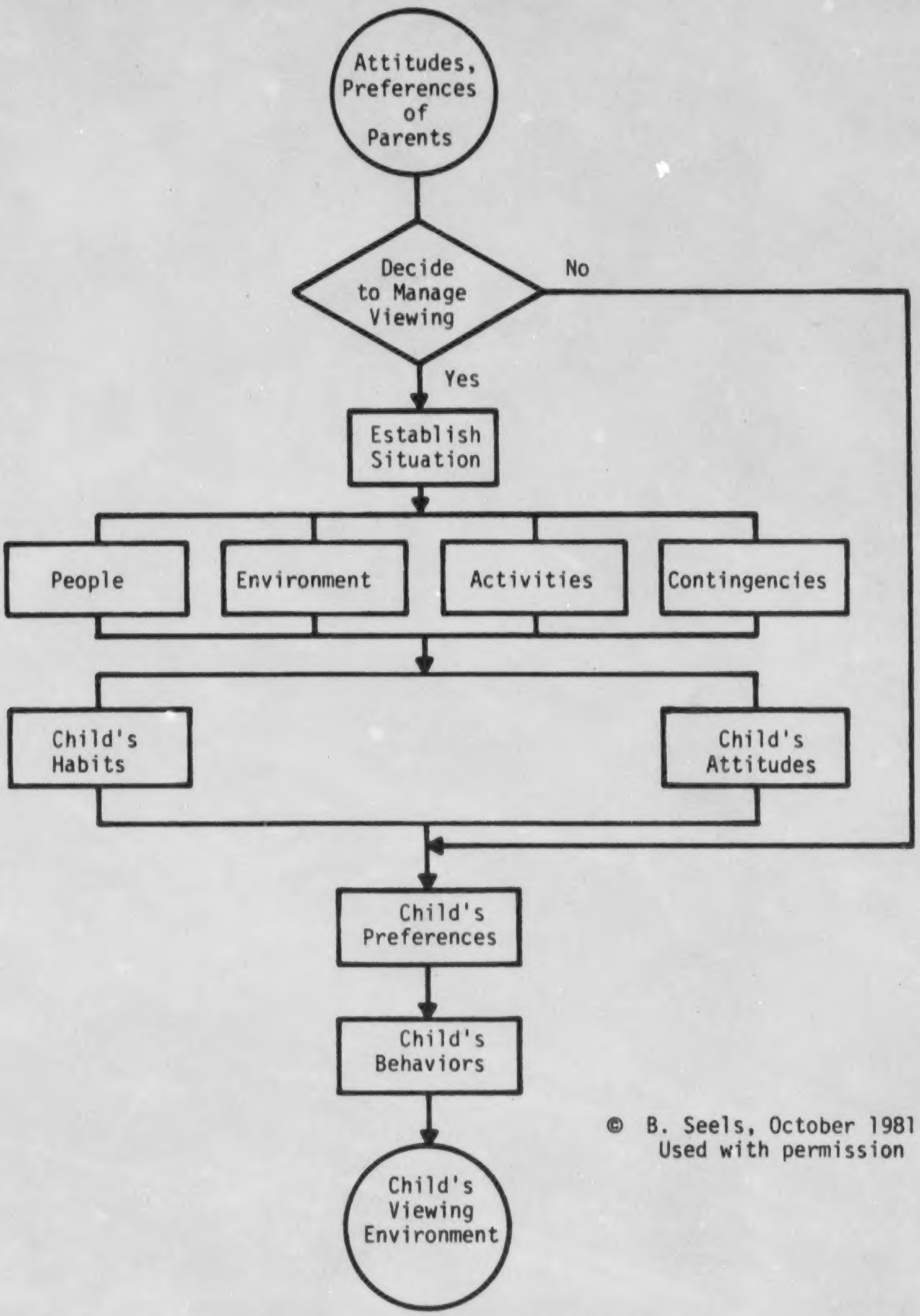
Attitudes, Preferences of Parents
Decide to Manage Viewing
No
Yes
Establish Situation
People
Environment
Activities
Contingencies
Child's Habits
Child's Attitudes
Child's Preferences
Child's Behaviors
Child's Viewing Environment

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Figure 1. Relationship Among Variables.

children's programming (Murray, 1971). Acting out, asking questions, and repeating songs were frequent responses to viewing (Barney, 1973). Television is a very involving medium for young children (Prawat and Prawat, 1975).

Television characters serve a behavior modeling function (Meyer, 1973). Commercial products are shown to have the power to resolve social interactions. How will the viewing affect children's modeling of the behaviors and language presented in commercials (Bloome and Ripach, 1979)?

Children develop strategies for viewing including strategies which allow for competing activities (Levin and Anderson, 1976). Rapid television pacing has no effect on the number of toys used during a play period (Anderson, Levin and Lerch, 1977).

There is continuing research on what and how often children watch (Levin and Anderson, 1976). The Spencer Foundation has funded several studies in the area of television viewing variables. Variables which have not been studied in any depth are the effects of where the television is, who uses it and what other stimuli are available in the room. In his review of the literature on incidental learning from television, George Comstock discusses conflict resolution and multiple set households. He concludes television will most influence children when other influences are absent. When child and parent disagree about television, the child prevails as often as the adult. When two parents disagree the child's preferences will prevail. In multiple set households the viewing situation changes, not the programs watched. The likelihood of joint viewing drops. The need for conflict resolution may also be lower (Comstock, 1978).

John Wright, Bruce Atkins and Aletha Huston-Stein summarized some characteristics of the setting in which a child views television:

a. The presence of others who are better informed or who can answer questions raised by a child.

b. The behavior of others, who through well-timed comments and questions model elaboration of content.

c. The preparation of the child through previous reading, viewing or discussion.

d. The opportunity to enact or rehearse, role-play plots, characters, situations viewed.

e. The distractions in the environment (Wright, et al., 1978).

The last characteristic (e), distractions in the setting, can have both positive and negative effects on use of television. Toys, for example, can be reinforcing, provide for active responses, offer completing stimuli for desirable breaks, or distract from learning.

Educating Parents

A parent's positive attitudes towards television do not correlate significantly with children's overt reactions to television (Ball, 1974). While parent/child attitudes do not necessarily correlate, there have been many attempts to help parents intervene and establish a positive viewing environment (Singer and Singer, 1974; Singer and Singer, 1977). Henderson and Swanson trained parents to be adjunct at home instructors using televised programs as tutorial material. Parent training for augmenting televised skill instruction proved effective (1977).

The United States Office of Education has funded four projects on critical viewing skills. The purpose of the projects is to develop content and materials parents and teachers can use. None of the projects deals with the needs of preschool children.

Materials for parents and teachers to use in establishing a television viewing environment can be found in unexpected places. J. C. Penney Co. provides a module "The Impact of Television on Children" (J. C. Penney Co., 1979). Magazines of Children's Television Workshop often include activities (The Electric Company Magazine, March 1981). Preschool learning systems may have sections on television (DeFranco, 1977).

Many articles, books and papers have been published to help parents deal with the issues surrounding television viewing (Roes, 1978; Moody, 1980; Winn, 1977; Davidson, et al., 1973; Collins, 1975; Johnson, 1970). Michael Howe writes of children's perception of reality and their viewing habits (Howe, 1977). Ellen Wartella (1979) reviews the current state of research on how children of different ages make sense of television viewing.

Summary

A review of research provides the basis for identifying characteristics of a good home environment for television viewing by preschoolers. While socioeconomic or educational level cannot be manipulated, many variables can be controlled. Variables which can be managed are viewing habits, situation, attitudes, preferences, facilities, behaviors, activities. Ways to investigate the variables and educate parents are discussed. The known and unknown effects of television on preschoolers are reviewed.

Appendix I:

Survey on Variables in the Environment for Preschool Television Viewing

I. Viewing Habits

a. What programs do you prefer to watch?
b. What programs do your children prefer to watch?
c. What programs do you prefer that your children watch?
d. In which way(s) are conflicts about preferences resolved?
e. Do you take any action(s) to establish preferences by habit? e.g., rules.
f. Would you be likely to try the educational station channel when twirling the dial for yourself? for your children?
g. Do you generally watch commercial stations? educational ones?
h. Which statement best describes your television watching routine?
i. How many hours a day do you usually watch? Does your child(ren) usually watch?
j. How many hours a day would you devote to (1) sleep, (2) reading, (3) t.v., (4) chores, (5) organized activity, (6) free play? How many hours a day would your child devote to the above?

II. Attitudes

A. Parental

1. Which describes your attitude towards sex roles?
2. What is the primary function of television?
3. What other functions does television have?
4. What is your feeling towards television in general?
5. How sophisticated do you think you are about television as a learning tool? About television in general?
6. How do you feel about television in relation to other media? e.g.,
7. Have you ever studied by books or courses the best way to influence child development, theory, t.v. or toys?

B. Children's (collect through short interview with child)

1. How real do you think ____________ is?
2. Is ____________ as real as ____________?
3. What television shows do you like most?
4. What toys do you like most? Don't like?
5. What books do you like most? Don't like?
6. Do you like to pretend to be something or someone else? Who or what do you like to pretend to be?
7. What are your favorite characters from books or television? Least favorite?
8. Tell me how much you like or dislike any of these: school, picture books, plain books, television, records, games.

III. Viewing Situation

A. People

1. What other communication is there in the situation?
2. Who dominates the viewing situation?
3. How often are peers present?
4. How often are siblings present?
5. How often is an adult present with the peers?
6. With the siblings?
7. With the child only?
8. How often does the child watch alone?

B. Environment

1. What room is the set in?
2. How many sets are there? Where?
3. What else is in the viewing room?
4. Are there toys in other rooms? What rooms? What toys?

C. Contingencies

1. What rewards are there for responsible viewing?
2. What inducements are there to interacting with television through toys? Through people?

IV. Behavior and Activity in the Environment

1. Do you arrange for television and play to be interspersed? How?
2. Do you see evidence of your children acting like the t.v. characters? Who?
3. Are television programs talked about? In the t.v. room? In the kitchen? How much discussion is there?
4. Do your children play with toys which use the same characters as in t.v. shows? for e.g.
5. What kinds of toys do your children use while t.v. is on?
6. What kinds of activities do they like to do while t.v. is on?
7. Is your child cranky after watching t.v.? Hyperactive? More impulsive?
8. Would you characterize your child as more interested in pictures and objects or songs or faces?
9. How would you describe your child's ability to concentrate? His attention span?
10. How would you describe your child, very imaginative? Very sociable?
11. How would you describe your child's intelligence?

V. Support Provided

1. Do you encourage and support your child's use of t.v. through any particular activities? What activities?
2. What kinds of discussions do you encourage while your child is watching?
3. Do you provide any special materials or toys related to t.v. shows? Why?
4. How do you show interest in what he's seeing?
5. Do you often drop in while he's watching or join him?
6. Are you available in another room if he wants to talk about it?
7. Do you allow him to have friends in to watch t.v.?
8. Do you allow your child some choices about t.v.? Which ones?

VI. Preferences

1. Which does your child prefer to watch?
   --Mister Rogers
   --Zoom
   --Sesame Street
   --Fat Albert
   --Cartoon
2. Does your child prefer to watch children's programming?
3. Does your child prefer to watch programs with children in them?
4. Does your child like commercials?
5. Does he understand what a commercial is?

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INVESTIGATING VISUAL LITERACY THROUGH OBSERVATION METHODOLOGY: CAN WE SEE HOW WE SEE?

by
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In this presentation, listed in the program as "Ethnographic Research in Visual Literacy," the presentor and the participants explored some of the questions and problems involved in the investigation of visual literacy utilizing observation methodology. Participants experienced the data collection techniques developed for a research study conducted by the presentor. A discussion ensued, involving questions about data collection, observation methodology, and the results of the study itself. A summary of the study was first presented.

Statement of Problem

The purpose of this study was to investigate the differences in responses of students to a short, educational film and a videotape of that film. The cognitive response involved students' understanding of the story elements of this film: plot, setting, character, mood, theme. The affective response involved their appreciation and reaction to both the story or theme and to the cinematic elements of the film. The study attempted to describe the students' visual understanding of the construction of the film and how that construction led to their reactions. The questions under consideration were: (1) how do students view a film; (2) how does the film create its effect; and (3) how does the knowledge of cinematic and literary elements affect the student response?

Procedure

Three methods of data collection were utilized to discover the film or videotape viewing experience of six classes of eighth grade English students. The primary data collection method was direct observation of student behaviors while viewing the film or videotape and participating in discussion. The second method employed was a survey of student responses through a questionnaire including both attitudinal scales and factual items. Comprehension, attitudinal, and biographical questions were included. The third method of data collection was a semi-structured interview, designed to obtain detailed responses from 10% of the students and all teachers involved.

The design, methods, materials, and instruments were all based upon normal classroom procedures and events, utilizing an holistic approach to investigating students' perceptions of a nonnarrated film. The affective elements of film were investigated as the interaction of the aesthetic form, literary content and affective responses of the perceivers.

Results

Students revealed a strong understanding of the literary elements of the film or videotape. From observation of the classroom viewing and discussions it was clear that students understood elements of plot and theme. From all data collection methods, it was clear that some students had a moderate awareness of the cinematic elements under investigation. Students could detail the rhythm, pace, sound track, settings, color, and scene composition. They were less able to detail editing patterns or specific shot composition. Film viewers understood more than videotape viewers.

The data revealed that more students understood the film or videotape than were affected by it. Film students attended more, talked less, and revealed more involvement, were more descriptive in discussion, and revealed more change of mood and more liking for the film than did videotape viewers.

Conclusions

These data suggested that students with high levels of familiarity with film, videotape, and television did not create a high level of understanding of the images viewed. Also suggested was that great familiarity with film study or other photographic processes did not create a greater understanding nor attitudinal change.

Students' true cinematic understanding was not established; future research needs to identify separate cinematic elements for individual testing. The differences in viewing behaviors of film and videotape classes suggested future research on viewing conventions and habits to further investigate the format controversy and affective responses.

The presentor and participants then discussed the observation instruments utilized. The actual classroom observation instrument was not questioned; the observation categories were accepted. The interview questions, such as, "Which do you prefer, video or film, and why?" were seen to be the most useful. However, additions to the interviews were suggested. Participants were especially interested in whether or not the students' visual literacy extended to their ability to note at what points during the viewing they were aware of any specific production elements.

The level of affective response to any aesthetically produced film or videotape was discussed. The possibility was raised that well developed visual literacy, as defined for this study, would eventually reduce or prevent viewers' true affective response to a film or videotape. It was agreed by participants that the question of visual literacy and suspension of disbelief while film viewing would continue to be an important and interesting area for further research and study.

THEORETICAL STATEMENTS & POSITION PAPERS

Theories and conjecture are much of the stuff of which IVLA conferences are made. At one extreme, there are a few topics each year that are controversial or otherwise emotionally charged. These sensitive issues may be pursued with good humor, missionary zeal, or something in between. At the other extreme there are the more benign opinions and notions which represent responses to curiosity and other forms of shared insight. In the middle are many sound theoretical presentations, offered with conviction and tempered with reason. You will find a full range in this section. Not all of the papers postulate clear theories in the purest sense of the term. True. But they are all theoretical in the sense that they offer ideas *which are based in either logic or fact or both.*

Some of this year's position papers, like that of Janet and Tillman Ragan, are highly documented and scholarly by any measure one might wish to apply. In this respect they tend to resemble the non-experimental studies grouped together in the section on literature reviews and research. Other papers in this section, e.g. that by Michael Streibel, tend to overlap into the application area of still another section of the book. This variety emphasizes the obvious: it wouldn't be an IVLA conference if we could neatly categorize all of the sessions.

VISUAL LITERACY: THE MOST BASIC SKILL

by

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AUTHOR'S NOTE: This was a presentation to be seen and heard, not a paper to be read. The style is conversational, not formal. The visuals included slides, video tapes, and 16 mm films. An attempt has been made to describe the illustrations, but a verbal translation can only approximate the impact of the visuals.

A good way to begin a presentation is to define terms. We are attending a conference of an association which promotes visual literacy. So everyone in this room possesses some understanding of the meaning of the term, "Visual Literacy."

I shall use the term in two ways: (1) to refer to a human ability--i.e., the interpreting, creating, and appreciating visual forms; (2) to refer to certain teaching strategies.

"Basic skill" is another controversial term. I shall use the term to refer to the ability to use one's knowledge to gain more knowledge and to communicate--exchange information--with others. Traditionally, the abilities to read and to write in verbal and mathematical codes have been considered basic skills--the 3 R's which unlock doors to new information and assist sharing information with others.

My title--"The Most Basic Skill"--implies that something can be more basic than basic, thus creating semantic problems. But let's not get into a semantic hassle. My intention is to show that--for sighted persons--visual literacy is the foundation for learning and communicating.

I shall expand on the following five points:

1. Visual abilities precede verbal and numerical abilities.
2. Visual abilities can be used to improve verbal and numerical abilities.
3. Visual literacy strategies in the classroom humanize technology by employing new learning theories which recognize the self-directedness of learners.
4. Our visual culture demands visual literacy.
5. And finally, that visual literacy gives us pleasure--enjoyment which results from an informed appreciation of the visual world.

Visuals are a language--one of the many languages we use to record our thoughts and communicate with others. Some of the other kinds of languages are: mathematical, musical, computer, codes (gestures, Morse), body language, sign language, mime, in addition to the thousands of spoken and hundreds of written languages--each uniquely appropriate to the communication of specific ideas. The act of using language can be called "languaging," which Jack Debes defines as ... "the intentional use of culturally acquired signs in culturally established patterns for the purpose of communicating" (Debes & Williams, 1978, p. 2). So when I'm talking about the process of using language--I'll use the term languaging--especially visual languaging. "One of the consequences for men of visual languaging includes the acquisition of visual literacy" (Debes & Williams, 1978, p. 1).

The purpose of languaging is to communicate with other humans. Communication requires both a creator of a message and an interpretor of the message. When using a verbal language, the literate communicator must be able to create a message by speaking or writing, and to comprehend the messages of others through listening and reading. The visually literate communicator must be able to create and interpret visual messages. In addition to being able to create and interpret verbal messages we usually consider the literate person as capable of appreciating great literature. Creating, interpreting, appreciating--the three facets of literacy--are as true for visual languaging abilities as for abilities in other kinds of languaging.

I've said visual languaging ability is the foundation for learning and communicating. Suppose we change the metaphor: Visual languaging abilities are the tap roots which nourish the plants of verbal and numerical literacies. Of course other senses are part of this root system. The infant, and the blind particularly, depend upon the tactile, auditory and kinesthetic senses. I challenge anyone in this room to walk through a fabric or a clothing store, and not touch the merchandise. However, the values gained through other senses do not diminish the importance of visual abilities. When I talk about visual literacy strategies in the classroom, you will discover that all senses and many languages are involved.

My first point is that visual abilities develop first. This fact is true historically. Early humans communicated first with gestures--a transient visual language--and later, drew pictures to give their messages a more persistent form.

This is still true of the pattern of development for infants and toddlers today as they visually explore their world. No one can deny that young children possess a store of knowledge before they learn to talk. Jeff has learned that he mustn't touch electric outlets (Figure 1). He may turn on some electric switches (Figure 2). It is the sophistication of that knowledge and its persistence throughout our lives which may cause controversy. We could spend our entire time on this one point. Each of you can recall from your own observations many examples of the knowledge children possess before they can talk.

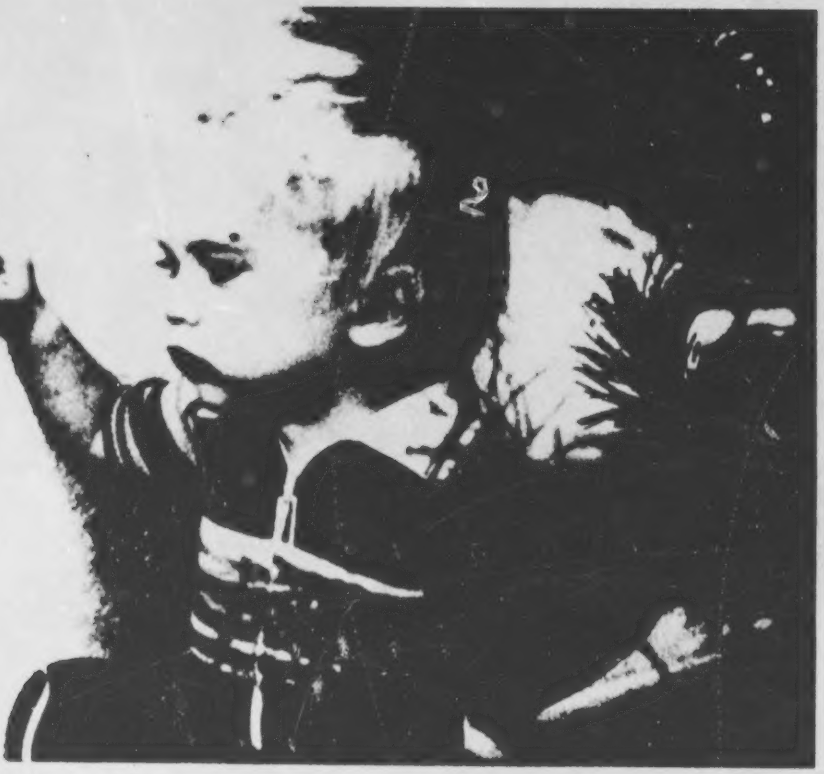

Figure 1. Jeff observing but not touching outlet. One of a 3-slide series.

One of the few research studies examining this problem was done by Phyllis Reynolds Myers, who found that 4-year-olds performed visual tasks as well as 16-year-olds. According to Dr. Myers, "The results of this study clearly point to the importance of visual memories as a base for verbal memories" (Myers, 1981, p. 28).

The truly startling research on early visual awareness and memories has been done by a psychiatrist, David Chamberlain, and an obstetrician/gynecologist, David Cheek. Both of them used hypnosis as the method for eliciting birth memories. I have talked with Dr. Chamberlain. He acknowledges that human memories are sometimes faulty; that recall under hypnosis includes some contradictions and omissions. As Dr. Chamberlain put it, "In court, I would not want my life to hang on any one isolated fact derived from hypnosis." Nevertheless, the findings of these two doctors are quite impressive. In Dr. Chamberlain's most recent study (reported November, 1980, at the 23rd Annual Scientific Meeting of the American Society of Clinical

Figure 2. Jeff turning on an electric switch.

Hypnosis) he obtained birth memories from ten mother-and-child pairs interviewed independently under hypnosis (Brain/Mind Bulletin, 1981). He used the mother's statement as fact against which to judge the accuracy of the child's memories.

The mothers ranged in age from 32-46 (Median of 38). The children ranged in age from 9-23 (Median 15). The children were mature and articulate enough to be able to communicate their memories to the interviewer. Mother and child reports of the same birth varied in length, detail and perspective, reflecting their different interests, perceptions, and actual experience from start to finish. In spite of these personal differences, Dr. Chamberlain reports that the two stories interlocked and formed a coherent whole. Clear contradictions in fact in the separate narratives were quite rare.

To summarize briefly: In reporting their own births, the children showed intimate knowledge of birth processes ... from the baby's unique point of view. Children were often correct in perceiving the group dynamics in the delivery room and the states of their mothers mentally, emotionally, and physically. They also reported their own states in a way that was appropriate to the separations and reunions described in their mothers' reports.

Dr. Chamberlain's report supports the earlier findings of Dr. Cheek who in 1976 hypnotized young adults he had delivered. He had kept meticulous records for these births and the recollections from the young adults significantly matched his original obstetric records.

Are we really ready for all this? Think of the implications for birthing practices, for societal treatment of children, for pre-school education and education in general!

All of you are familiar with the Stanford-Binet tests--popularly called IQ tests. In 1927 thousands of people were tested and the tests were "standardized" so that the mean score for every age group was 100. In 1972, another very large scientific sampling was undertaken. This time a curious fact emerged. The mean score of pre-school children was higher than 100. For children about one year of age the mean score began to rise rapidly above 100. The mean rose slowly to about 111 for 5½ years old. Then it began to drop until for 8½ year-olds the mean was again 100. An item-analysis disclosed that more correct responses on the visual questions had resulted in the higher scores.

How is life for the 1972 pre-schoolers in the United States different than for the 1927 pre-schoolers? Television is the one factor in United States society that appears to be the probable difference! Perhaps it is only happenstance but it is interesting to note that the IQ scores begin to drop at about the age of 5½, at the time when, as Debes observes ... "young people in the U.S. are subject to our most compulsive efforts to force them to become verbal" (Debes, 1978).

This view of television raising IQ scores is quite the opposite of the charge that television is responsible for the declining Scholastic Aptitude Test Scores.

Which leads me to my second point: Visual abilities can help improve reading and mathematical achievement.

We cannot improve a situation by doing more energetically that which we have been doing ineffectively. We never have been overly successful in teaching the 3 R's. A perennial complaint of high school teachers has been that their students were not prepared properly in elementary school. College professors complain that high school graduates can't read or write. Is the answer more of the same?

The answer requires a 180° shift in our thinking. Let me illustrate ... visually: Last Spring as I looked out of my hotel window in Philadelphia I saw what appeared to be an opaque mirrored surface; the roof of the atrium--or lobby (Figure 3). I could not see through it. It merely reflected the sky and clouds and adjacent buildings.

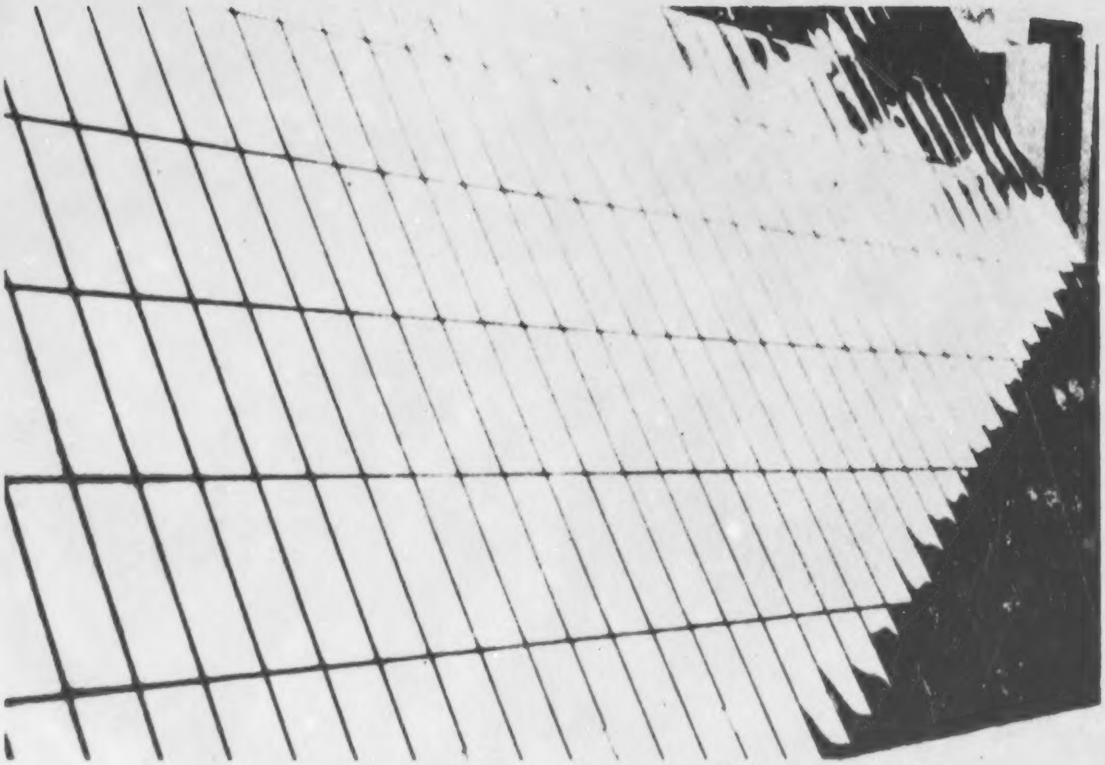

Figure 3. Atrium: outside view.

Then I went down into the atrium of the hotel and looking up I could see the steel bars supporting the glass roof (Figure 4). As I rode the escalator to the next level I could see through the glass roof to my hotel window and watch the changing relationships as the steel framework seemed to move against the pattern of the hotel,--much the way a learner's knowledge of a subject may change as she gains more and more information (Figure 5). When we are designing instruction, maybe a change in viewpoint will suggest solutions. We need to see through the learner's eyes.

For instance, at a recent seminar, one young man brought his 3½ year old son. The child occupied his time with several small toys, sometimes sitting, sometimes walking quietly around the room. He paused at the window, asking in a puzzled voice, "Has it been raining?" All the adults replied, "No, it hasn't rained today." But one person added, "It's just threatening." Almost as though talking to himself, the child said, "Threatening?" When we stood up to leave we could see out the window and realized the reason for the child's question and the

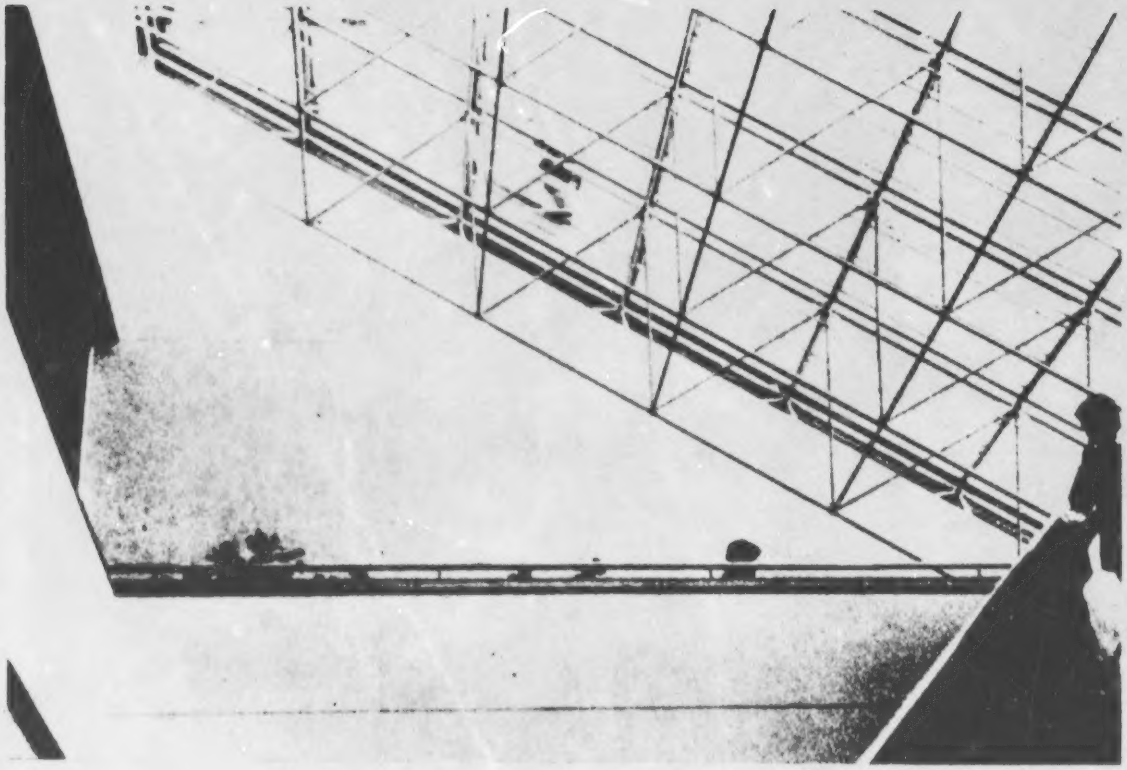

Figure 4. Atrium: the inner framework.

inappropriateness of our answers. A street scrubber had cleaned one side of the street, leaving the other half dry. What kind of meaning do you suppose that child is constructing for the word "threatening"? A street only half-wet? Often, we are too quick to answer a child's question from an adult point of view, instead of finding out what circumstances prompted the question.

In the next few minutes, I would like to show you how we impose goals from above, when designing instruction, instead of facilitating the unfolding of a developing individual. We impose our structures of knowledge instead of helping the learner construct his or her own pattern of knowing. We plan instruction while looking out the hotel window. We sit at the table and say, "It is only threatening rain."

A quite generally accepted view of education is expressed in this statement from Robert Gagné: "The educational aim of producing students who are good thinkers has been emphasized by educators for many years ... " (Gagné, 1980). Evidence, however, seems to indicate that we have

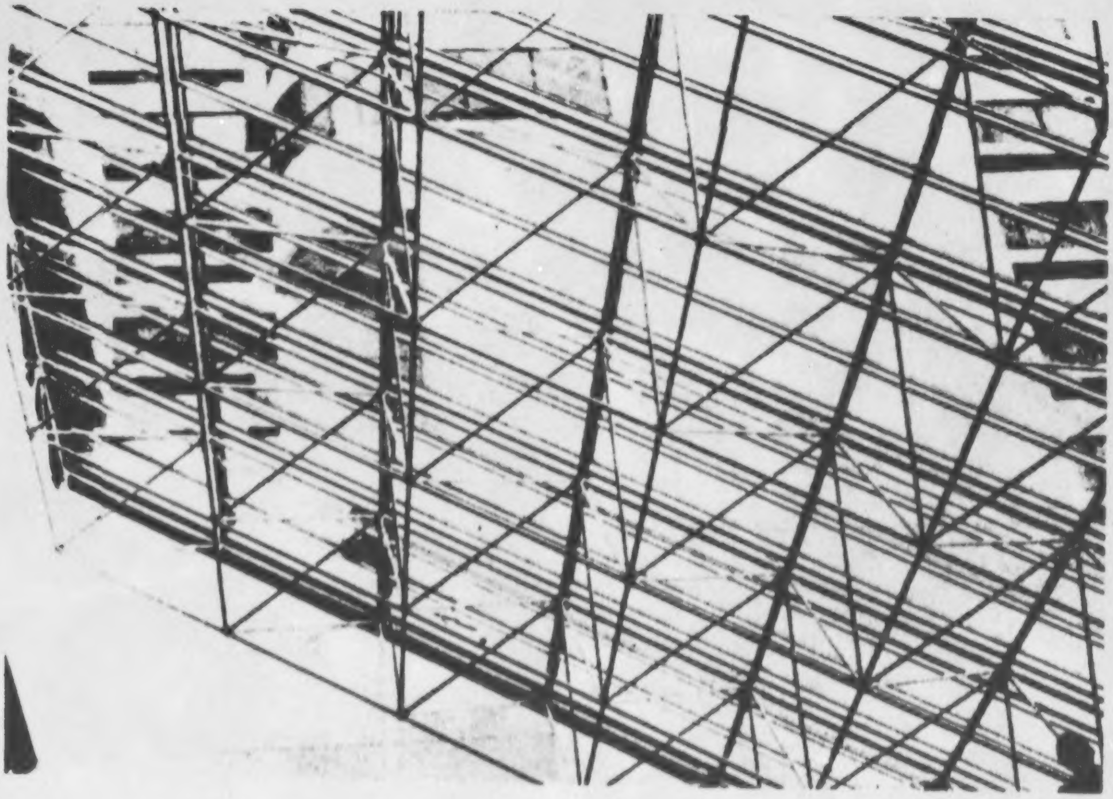

Figure 5. Atrium: looking out at changing patterns.

not been very successful in "producing good thinkers." Gagné (1980) suggests three possibilities for this lack of success--

1. not enough teachers believe in its importance;

2. nobody knows how to do it;

3. maybe it can't be done.

Perhaps Gagné and other instructional designers like him are looking out the hotel window, to see the mirrored glass roof reflect themselves and the world of knowledge as they know it. What would happen if we, as educators, crossed over to the lobby side, got on the escalator with the students, and watched the changing relationships of knowledge patterns from their point of view? The body of knowledge and the intellectual skills--the hotel wall in this metaphor--would still be visible. Also visible would be the steel bars, and the changing pattern of the students' knowledge, skills, and goals.

How can we do this?

By listening more, and talking less.

By providing a rich environment of learning, and presenting less.

By giving students a greater say in what they will study.

By giving them--at every age--as much freedom and responsibility as they can handle.

By becoming facilitators of learning, rather than instructors.

By encouraging cooperation rather than competition.

By continuing to be learners ourselves.

Instead of stating our educational aims in terms of "producing students" (as Gagné did) we should recognize *that self-directedness is a human trait to be nurtured*. We need to see learning as preparing to deal with new situations. In *No Limits to Learning*--a report to the Club of Rome by a committee on Education, they stated, "For us, learning means an approach, both to *knowledge* and to *life*, that emphasizes human initiative [italics mine]. It encompasses the acquisition, and practice of new methodologies, new skills, new attitudes and new values necessary to live in a world of change" (Botkin et al., 1979, p. 8).

These suggestions for changing our point of view have a respectable base in cognitive psychology. Emphasis on *human initiative* is found in Ulric Neisser's model of the perceptual cycle (Neisser, 1976). In Neisser's view, the cognitive structures crucial for vision are the anticipatory schemata that prepare the viewer to accept certain kinds of information rather than others. Thus the schema controls the activity of looking. At each moment anticipations of certain kinds of information enable the perceiver to accept it as it becomes available. Perception is a constructive process. We can see only what we know how to look for. It is the schema that directs the explorations and determines what will be perceived.

The outcomes of these explorations--the information picked up--modify the original schema. Thus modified it directs further explorations and becomes available for more information. The term perception applies to the entire cycle. Schemata can become detached from the cycles in which they are originally embedded. Such detachment is the basis of all the higher mental processes. What happens then, is not perceiving, but imagining, planning, or intending. In this view, cognition develops from perception. Vision as a major channel for perception serves a primary function in learning.

Suppose we recognize first graders as the capable, eager, experienced learners they really are. They have been learning by moving about in a three-dimensional world attending elements in their environment as directed by their individual schemata. They have been looking at picture books and watching lots of television. TV and pictures have only two dimensions and force the child's attention within frame. The child can enter the frame from any point and progress in any sequence--'round and about, across and up and down--the picture still "makes sense."

The task of reading is quite different. The child's gaze must enter at the upper left, proceed to the right, noting each word in sequence. This is a physical discipline which must be learned. In order to learn the child must want to learn. Children like to do the things at which they are successful, and which have meaning for them in terms of the things they value. The solution, then, is to create a bridge between the child's habits, experiences, and interests and the task of recognizing printed words and sequencing them grammatically. Visual literacy strategies can create such a bridge. These strategies are grounded in visual languaging, moving from the child's knowledge of transient visual forms--gestures, facial expressions, events, ... through oral interpretation to reading and writing the verbal descriptions.

Visual literacy activities use the learners' social understandings, their desire to learn, imaginations, and creative instincts. Students are encouraged to use mental imagery in learning word meanings ... to draw, paint, mime, dance, sculpt, and to use cameras--still, movie, video--and now, computers that create graphic forms. They combine these visual forms as in drawing and clay modeling for animated movies. They use the computer to create graphics and abstract figures for video productions. They add narration, music and sound effects to complete the audio-visual messages. The content of these audio-visual messages can be in any subject area--from social studies to math, from language arts to science. Visual literacy activities are almost as diverse as the number of practitioners. How can you recognize a visual literacy activity? In general, they can include:

--any activity which develops visual literacy abilities or--

--which uses visual literacy to facilitate attainment of other curricular goals.

We can be a little more specific. They are activities which focus on creating visual forms; activities which emphasize the interpretation of pictures, i.e., the learning of content from pictures and the appreciation of eloquent visual messages; activities which develop or utilize visual thinking--holistic and mental imagery strategies.

The early visual literacy activities in the U.S. in the late 60's and early 70's usually involved either visual sequencing--with Photo Discovery Sets, making picture stories with still cameras or creating motion pictures, or they focused on film as literature--learning to critique, interpret and appreciate moving pictures. Most of the visual sequencing projects were funded for rather brief periods, six months to a year, and much of the money available was earmarked for improving learning for the disadvantaged. Evaluations were very positive--above average improvement in reading, improved self-image, improved interest in school, and fewer discipline problems. But in spite of the positive evaluations, when the money ran out, the projects often were discontinued.

Now in the beginning of the eighties I see hopeful signs of renewed interest. Several school systems are developing visual literacy curricula. Two of the most promising are in Virginia--at Virginia Beach and Richmond, Virginia. They have developed a sequential set of objectives, activities, and materials for kindergarten through level 5. In Australia, the National Curriculum Development Centre has published a set of booklets and video tapes developed in Adelaide by a group headed by Deane Hutton (Visual Education Project, 1980).

The growing body of knowledge about hemispheric specialization and the biological evidence that there really are at least two ways of knowing, have sparked a great deal of interest in visual literacy. A few years ago there was considerable opposition to the term. Now it is generally accepted--even in research circles. Furthermore, the terms media literacy and computer literacy are now in our language.

To illustrate the visual outcomes of filming activities I have brought a brief sampling of films made by 3rd and 4th graders in Iowa City. As we watch these films we marvel at the imaginative situations. We are impressed by the production skills and amused by the imperfections. Truly these products are impressive. Even so, the process of creation is more important than the final product.

The process is more difficult to illustrate. We can show you pictures of the children at work on their films, as they brainstorm ideas, plan the scenes, research the content, prepare story boards, make scenery, construct titles and credits; shoot the films, edit them and then critique them. One rather obvious fact shown in these pictures is that the children are learning to use our modern technological tools of communication. Such media literacy skills are important in our culture.

What the still pictures do not show are the other kinds of learning which occur during this process of creating.

Reading, writing, and organizational skills are essential in researching the content of the presentation and in organizing and writing the script. As class activities these visual productions require cooperation--learning to be dependable oneself and to appreciate the talents of others. The students use math skills and apply science concepts as they solve the problems of production. For many visually oriented children who have experienced failures in reading and math, visual literacy activities give them the rewards of successful achievement.

My fourth point is our visual culture demands visual literacy.

Just as it takes different levels of verbal literacy to read a first grade primer, a Ph.D. thesis, a market analyst's report, the specifications for a TV camera, or a doctor's diagnosis of a patient's symptoms, so there are different levels in visual literacy.

Technology has provided the tools whereby we can record visual information unseen before. Each new visual technology demands highly skilled personnel. Even for those of us who are not involved in specialty visual applications, our visual culture demands intelligent interpretation of the myriads of visual forms which surround us every waking hour.

It is a generally accepted fact that more than 98% of the homes in the United States own one or more TV sets. Pre-school children watch TV many hours per week; by the time students graduate from high school, they have spent more hours watching TV than hours spent in school. Add to this TV exposure, the number of hours spent in movies, reading comic books, and looking at pictures in magazines. Then we begin to grasp the impact of visual information on our society.

Economic evidence is furnished by the fact that TV sales are outperforming the general market. TV Guide has the highest readership of any magazine in the U.S.

These statistics have two important implications for teachers?

First, this visual bombardment has changed the students in our classrooms. They read the visuals faster than their teachers. They have a vast array of information only part of which is stored in any organized fashion. They tend to believe what they see--to accept the materialistic values. They tend to accept violence as a way to solve problems.

Second, teachers have a responsibility to help students learn to deal with the visual information they receive.

This problem is illustrated by the Chanel Number 5 perfume commercial in which a beautiful young woman in a swim suit is lying at the end of a swimming pool. A man dives into the pool at the other end and emerges at her feet. This commercial is a sophisticated statement ... carefully crafted ... rich with symbolism and eloquent visual transitions. Its appeal is directly to the emotions, by-passing rational processes. Much as we may admire the sensual beauty of its visual and verbal language, it is important to be able to evaluate it critically ... to recognize both the obvious and subliminal messages, and their attempt to manipulate the viewer into making the decision to buy Chanel Number 5.

Students studying literature learn to recognize trite phrases, glittering generalities ... loaded words. These characteristics are also present in visual languaging, and we should be teaching students how to recognize them, so they'll at least be able to make the decision of whether they want to be manipulated or not.

One way to help learners develop critical viewing skills is to have students make their own commercials--such as Toothpaste and Princesses--which you saw in the Sabin film. Creating their own "visual messages" followed by constructive criticism from peers and the teacher builds visual critical evaluation skills, just as creative writing does for verbal languaging.

Finally--visual literacy is important because it gives us pleasure--the enjoyment which results from an informed appreciation of the visual world. Appreciation develops from an understanding of the continuation of forms through subtle or dramatic transitions.

Like the commercial, another example of a visual message which delights the visually literate is the first five minutes of The Trigger Effect, the first film in the Connections Series, written and narrated by James Burke.

The reviewer should observe the flow of images from scene to scene--the changes in pace--the wedding of sound and image--the precise timing--the use of light and symbolism.

Ask yourself what is the meaning of

... a moving "talking head."

... closing the door on "of course you don't."

... walking through door while saying "going inside."

... the many gears lifting the elevator.

... the long shot with Burke a tiny figure.

... the flashing red light on the observation tower.

... camera pulling away--passing the lighted skyscrapers.

As you notice these and other visual details, think about the knowledge and pleasure you miss when you are visually illiterate.

Learning to see the beauty around us becomes a lifelong source of pleasure, as illustrated in these final slides. Pleasure in seeing small things often overlooked; a delight in seeing light reflected from ice-coated trees or a snow sculpture; seeing different views of the same flower, a gladiola from a distance, or backlighted or close-up or in silhouette; noticing differences in flowers; noticing how light changes a pussy willow and a wire owl; creating light patterns; looking up or looking down; seeing magic in a lawn sprinkler and a tomato vine; thrilling to a rose bud or a full-blown rose.

Visual literacy is

... a human capability

... a teaching strategy

... the key to a deeper understanding and enjoyment of life

... the most basic skill!

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THE MAGIC OF WORKING WITH PEOPLE: CONTRIBUTIONS OF NEUROLINGUISTIC PROGRAMMING (NLP) TO VISUAL LITERACY

by

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In Frank Herbert's classic science fiction novel, Dune (Herbert, 1965), a leading character, Lady Jessica, is a member of a sect called the "Bene Gesserit." The Bene Gesserit are women who have completed a long and rigorous training program which develops their ability to "read" both verbal and non-verbal cues in interpersonal communication so well as to be, in essence, mind readers. Not only are the Bene Gesserit adept readers, but they also have learned to use "The Voice." When a Bene Gesserit speaks to you using "The Voice," the persuasive quality of her speech is absolute. The motives of the Bene Gesserit are secret and somewhat political. Fortunately the motives have in general something to do with saving the Universe from some terrible, ruinous fate.

The abilities of the Bene Gesserit, as described by Herbert, are so profound as to place them in fearful awe by the population at large. The Bene Gesserit are even considered by many to be "witches" because people do not know how their infallible "lie detector" and mind reading abilities work.

Introduction to Neurolinguistic Programming

Today in the U.S. a growing population of therapists, social workers, lawyers, educators, business people, and professionals from the private and public sector is flocking to workshops and seminars to learn "the magic of working with people" from the contemporary Bene Gesserit, a sect who call themselves neurolinguistic programmers. The development of neurolinguistic programming (or NLP, for short) began in the early '70's in California as an interdisciplinary team of curious people with diverse backgrounds set for themselves the modest goal of modeling the essential elements and processes of effective communication. The developers brought a variety of knowledge and skills to the pursuit: Richard Bandler, a mathematician and Gestalt therapist, and John Grinder, a linguist, joined with Judith DeLozier, whose expertise is in religious studies, and Leslie Cameron-Bandler, who was trained in psychology and was practicing as a counselor (Goleman, 1979).

These four, and others, set out to model the elements and processes of effective communication and to reduce these to formulas that could readily be taught to others. What eventually emerged is a set of tools which, neurolinguistic programmers claim, enable people to attend to the communicative behaviors of others more discriminately and more sensitively, and a set of guidelines for using these tools to enable people to respond more effectively to others. This latter day magic is based not on alchemy or science fiction but on theoretically sound principles and practices which have been articulated and accepted in the academic circles of linguistics, kinesics, psychology, and cybernetics for the past twenty to thirty years. NLP is an interdisciplinary synthesis of ideas and tools from many disciplines.

The team made detailed observations of talented communicators using film, videotape, and live interactions. They studied three therapists with particular depth since these were widely reputed to be 20th century wizards in their respective professional circles. These therapists were: Milton Erickson, a psychiatrist, especially well known for his work in hypnosis; Virginia Satir, a charismatic family therapist; and Fritz Perls, father of Gestalt Therapy. How three such seemingly different therapists, operating out of varied theoretical schools, achieved similar results in rapport and transformation with their clients intrigued the team. They paid close attention to what these therapists said and did and sought to describe the communication behaviors of the therapists and their clients in order to model the magic of human communication.

The Meta Model

In The Structure of Magic, Volumes I and II (Bandler and Grinder, 1975; Grinder and Bandler, 1976), the Meta-Model is spelled out as a linguistic tool which is useful for understanding how verbal utterances either are, or are not, adequate representations of the internal awareness or experience a person is trying to communicate. To explain how wizard therapists work verbally, the modelers went to the field of linguistics in general, and transformational grammar in particular, to introduce the concepts "surface structure" and "deep structure." A surface structure is any verbal communication, spoken or written, which provides information about the experience or awareness of a communicator. Deep structure refers to the more complete linguistic representation the communicator has in his or her mind. This fuller deep structure is often NOT verbalized, due to the series of choices a person makes when encoding ideas into words, phrases, and sentences, following relatively unconscious rules of language generation and grammar. Surface structures often delete, distort, or generalize the information that lies in a person's deep structure, or fuller sense of ideation and meaning.

The Meta-Model articulates a set of linguistic distinctions which enables communicators to check their own or others verbal statements for possible deletions, distortions, and generalizations. These distinctions, nine in all, enable communicators to examine and challenge surface structures so that (1) deleted, unspecified or generalized material can be retrieved; (2) limits imposed by certain linguistic habits can be questioned, and (3) some meanings and belief statements can be tested further against an individual's store of experience. The Meta-Model, once learned, is a straight-forward, pragmatic tool which puts into action some long established principles of linguistics, general semantics, and social semantics.

Representational Systems

Neurolinguistic programmers focused on both the content and the process of the communication sequences they studied, paying attention to what was said, how it was said, and what interactants did. The modelers evoked Korzybski's map-territory analogy (Haney, 1967) to make a transactional statement about the nature of individual experience. Briefly, there is an irreducible difference between the world and our experience of it; we do not operate directly on the world; each person creates his or her own unique representation or map of the world out of sensory experience; and this map or model then guides further perceptions and experience (Bandler and Grinder, 1975). As the neurolinguistic programmers attended to therapists and their clients, they noticed that people's representations of their experience did not always acknowledge information that is available through all five senses (visual, auditory, kinesthetic, olfactory, and gustatory), nor did representations often contain information from the three primary sensory systems (visual, auditory, and kinesthetic). Rather, they found that a given person's representations tended to contain many more distinctions in some sensory systems than in others. The idea of a "favored sensory system" or a "primary representational system" took form as the modelers observed people using one sensory mode more heavily than others to gather information from the environment, to express their experiences, and to access stored information either as memories or for the construction of new ideas. For example, they found that some people favor the VISUAL sense: they attend visually and make numerous visual distinctions in their experience; they believe what they see; they recall experiences in pictures or movies; and their speech contains a great many visual predicates. Other people favor the AUDITORY system: they listen carefully and make many auditory discriminations in their experience; what they hear makes sense to them more than what they see or feel; they recall experiences in sound tapes; and they talk in auditory terms. Still others favor their KINESTHETIC system: they attend to experience through their physical and emotional feelings and make many such distinctions in their experience; they believe what they feel more than what they see or hear; they recall experiences by generating feeling states associated with those experiences; and they use kinesthetic predicates.

In stressful or problematic situations, people tend to rely exclusively on one representational system, shutting down the others. Ideally, an effective communicator is able to (1) attend to experiences with all the senses, (2) organize, store, and retrieve experiences in a number of sensory channels, and (3) represent those experiences in predicates from a number of sensory systems.

The means for determining which representational systems are in use include three important tools: listening for predicates, watching eye movement patterns associated with internal information retrieval, and observing body cues.

Tool 1: Listening for Predicates

Listening to the verbs, adjectives, and adverbs people use as they generate representations of their experience is one of several tools which neurolinguistic programmers use to determine which representational system a particular person is using at a particular time. They note the frequency and diversity of vocabulary distinctions a person makes across sensory modes to identify which parts of the stream of sensory experience the person is consciously attending to, and hence favoring, and which parts he or she tends to ignore.

In addition to listening for natural vocabulary, some NLP trainers ask workshop participants or clients to generate word lists, recalling as many words as possible to fill columns labeled for each of the representational systems. Figure 1 is an example of such a form, with common predicates listed for each representational system.

In addition to the five sensory systems, people have an additional resource to represent their experience: a language which is unlike the language of direct sensory systems in that it abstracts information from the sensory systems, but does not, in itself, directly represent sensory experience. NLP identifies this representation system a "auditory digital" (Ad), as distinct and apart from the auditory tonal (At) system which represents sounds or tones. The auditory digital system abbreviates, summarizes and generalizes information gained as a result of direct sensory experience. The visual (V), auditory tonal (At), kinesthetic (K), and olfactory/gustatory (O/G) systems are all analog systems in that they are directly related to sensory inputs, but the auditory digital (Ad) system is further removed from direct sensory experience.

Tool 2: Accessing Cues

NLP trainers watch people's eye movements as another indicator of which representational systems they are using. While language provides information about a person's conscious experience, the eye scanning patterns a person uses reveal how he or she retrieves or constructs internally generated experience. When most right handed people internally generate experiences, either by remembering them or constructing them in the imagination, their eye movements are characteristically those in Figure 2. That is, to remember a visual image, eyes go up-left (his or her left). To construct a visual image, eyes go up-right. To remember an auditory experience, eyes go horizontal-left. To construct an auditory experience, eyes go horizontal-right. Eyes down-left indicate auditory accessing, frequently internal dialogue. Eyes down-right indicate kinesthetic experience. Defocused eyes indicate visual imagery in the internal accessing mode.

Persons who are left handed ordinarily reverse the accessing patterns of right handed persons so that the eyes up-left position indicates visual construction, eyes up-right indicates visual memory accessing,

Figure 1. Examples of predicate lists.

VISUAL	KINESTHETIC	AUDITORY TONAL	OLFACTORY/ GUSTATORY	AUDITORY DIGITAL
see	feel	soft	stale	know
look	touch	loud / quiet	fresh	understand
find	reach	say, tell	sweet	compare
search	stroke	whisper	fragrant	Contrast
view	open / close	ring	spicey	apply
viewpoint	warm / hot	clang	musky	consider
perspective	strong	yell, shout	salty	certain
bright / dull	light	scream	bitter	differentiate
clear / hazy	hands on	hear	pungent	learn
picture	moving	listen	smells	nice
visualize	flowing	rings true	taste	change
eye to eye	stretch	sounds good	sour	respect
sparkling	pull together	talk	herbal	trust
blue	grasp	harmony	hot	remember
focus	handle	amplify	delicious	believe
envision	rough	tune	rancid	study
scan	smoothe	tone	odorous	memorize
glaring	cool / cold	announce		test

ANALOG

DIGITAL

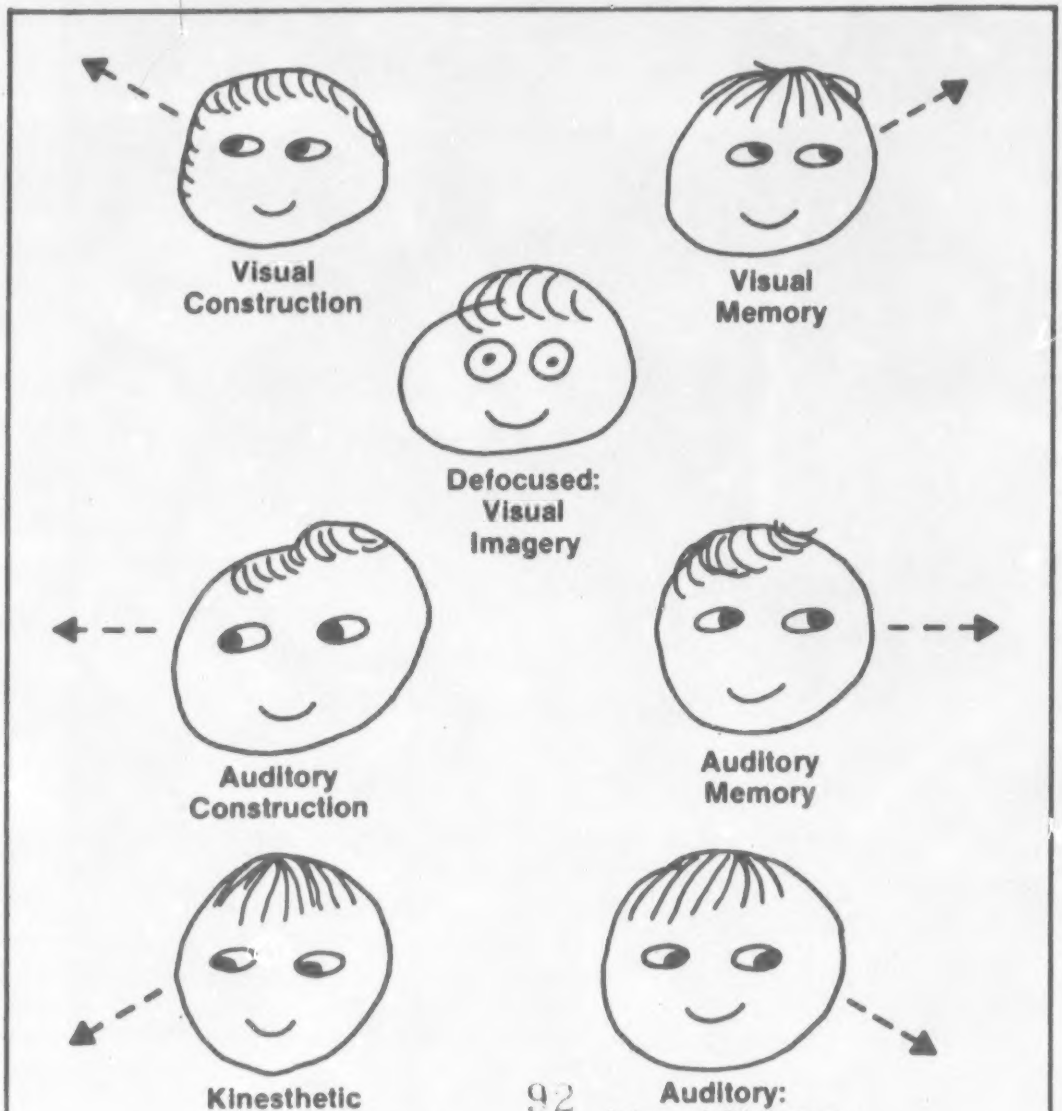
Visual Construction
Visual Memory
Defocused: Visual Imagery
Auditory Construction
Auditory Memory
Kinesthetic
Auditory: Internal Dialogue

Figure 2. Unconscious Eye Movements of Most Right Handed People Accessing Information.

and so on. Persons who are ambidextrous may exhibit entirely different accessing patterns, but each will be self-consistent in his/her pattern, as is a right handed or left handed person.

People typically favor one internal process over others for accessing internal experience, and neurolinguistic programmers refer to that process as the "lead system." Cameron-Bandler (1978) reports asking two men volunteers at a workshop, "What color are your mother's eyes?" One's eyes first went down-right in response to the question while the other first looked up-left. The former had a kinesthetic lead system; he reported, "I got the feeling of my mother, then I saw her face and looked at her eyes." The second man reported, "I just saw her face and focused on her eyes"; his lead system was visual.

There are several ways to determine accessing cues. One method is to observe accessing in natural conversation, noting whether they are right or left handed, and checking out the observations with process questions that match the accessing cues in use. For example, if a person is describing his house, the NLP trainer might notice accessing cues up-left and ask, "Could you give me a fuller picture of that?" If the person were then to access up-left repeatedly and his vocabulary contained frequent visual predicates, then that part of his accessing pattern could be considered calibrated.

Another way to calibrate a person's accessing cues is to ask a series of questions which call for answers from differing sensory systems and observe the person's lead and follow up eye movements. Further questions about the internal representations experienced by the individual enable calibration. Questions calling for answers in different sensory systems include the following examples:

Do you have a sister? (lead)
What color are her eyes? (Vm)
Can you remember the sound of a cat purring? (A)
Can you remember the smell of fresh baked bread? (K, O/G)
Picture yourself driving a Lincoln. (Vc)
Who did you talk to last night? (lead)
What was the conversation about? (A)
Remember how it feels to ride a bicycle. (K)
How did you feel when a loved one died? (K)

After several questions are asked and either answered out loud, or answered silently by thinking, check out the accessing patterns observed by questioning the person about his or her internal experience. For example, "When I asked you if you had a sister, your eyes went up-left. Did you see a picture of her? And when I asked you about the cat purring, what happened inside?"

Tool 3: Physical Cues

Neurolinguistic programmers use a third set of observations to determine which representational system a person is operating in at any given time: physical or body cues. Posture, interpersonal distance, breathing patterns, voice tone, looking behaviors, and eye elevation are further cues indicating the representational system a person is using. Figure 3 contains a summary of physical cues, adapted from Pucelik's (1981) training materials.

People who are representing VISUALLY tend to maintain upright postures with shoulders held high or squared off, and the head held high. Since visuals rely on what they see, they tend to maintain several feet of distance from others they interact with: they want to SEE the other! The breathing movement of a visual representer is most likely to be high, in the upper chest area. When in the visual mode, many people like to have their eye level slightly above the eye level of others; that way they can "look over" what is going on. Visual representers watch others carefully; they "look to listen." The voice tones of a visual representer are likely to be loud, fast, and clear.

KINESTHETIC representers (kinos, for short) provide a contrasting array of body cues as compared to visual representers. Kinos are likely to lean forward, bow their heads, and round their shoulders softly. Frequent gestures and self-touching are characteristic behaviors of those representing their experience kinesthetically. A kino prefers close interpersonal distance, including touching; and, his or her breathing movement is likely to be in the lower part of the chest. Frequently, a person in the kinesthetic mode will position himself or herself so that his or her eyes are below the level of the other's. The looking behaviors of people who represent their experience kinesthetically are not consistent, but they frequently touch themselves or the other while listening. Voice tones are soft, light, and airy.

The person who is representing experience in the AUDITORY TONAL system usually postures himself or herself loosely and frequently folds his or her arms. The "telephone posture" of resting the head on a hand at the temple is characteristic posture for a person in the auditory tonal mode. The volume of sound is the key determinant for how close or far an auditory tonal representer will stand relative to another person; she or he comes closer to hear soft sounds, backs off to modulate louder sounds. Breathing is full, with the entire chest/stomach area moving. The auditory tonal representer does not have a consistent preference for eye level vis-à-vis another person, but his or her looking behaviors are obvious: the auditory tonal person does not look to listen because they eyes are not busy, the ears are. The At voice tones are rhythmic, melodic and changing.

When representing experience in the AUDITORY DIGITAL mode, a person tends to tighten his or her muscles, hold the head high, and, many times, fold the arms. Interpersonal distance may vary, but touching is very

	VISUAL	KINESTHETIC	AUDITORY TONAL	AUDITORY DIGITAL
POSTURE	upright or straight; head on shoulders	movements; forward lean; shoulders round; head bowed	loose; arms folded: head down in telephone posture	tight; arms folded; head up
INTER-PERSONAL DISTANCE	far	close	depends on sounds	no physical contact
BREATHING	high in chest	lower chest	full	restricted
EYE ELEVATION	above other	below other	not consistent	gaze above other's eyes
LOOKING BEHAVIORS	look to listen	not consistent	don't look to listen	no eye contact
VOICE TONES	fast loud clear	light soft airy	rhythmic melodic changing	monotone clipped consistent
	Analog Systems			Digital System

Figure 3. Physical cues.

rare in this mode. Breathing is restricted, with very little movement in the chest or stomach. Although the auditory digital representer's eyes may be even, level, or below those of the person he or she interacts with, the Ad representer is likely to gaze slightly above the eyes of the other person. Direct eye contact while listening is avoided; like the auditory tonal representer, the auditory digital representer looks elsewhere to listen. The voice tones of a person representing in the auditory digital mode are likely clipped, consistent, and in a monotone.

Tool 4: Anchoring

Neurolinguistic programmers have developed a variety of practical uses for classical conditioning. They define "anchoring" as the process of associating a specific external stimulus (a sight, sound, touch, smell, or word) with a specific internal emotional state in which visual, auditory, kinesthetic, and perhaps olfactory/gustatory senses, as well, are experienced fully or intensely. In the case of Pavlov's famous dog, a bell was rung at the same time food was presented to the hungry dog and soon, the sound of the bell alone evoked the internal response of salivating in the dog. When an association has been effectively accomplished, the external stimulus elicits the immediate experience of the internal state it is associated with, as long as no stronger competing state of consciousness is present (Cameron-Bandler, 1978).

Examples of natural anchoring abound in human experience. Lovers come to associate their romantic feelings with "their song"; the sight of the American flag or the tune of "The Star Spangled Banner" rouses patriotism in many Americans; the sight or mention of a mouse or snake evokes phobic responses in many people; and, the smell of sweaty sneakers takes many people back to a full internal experience of the high school locker room. Neurolinguistic programmers noticed that therapists often make natural though unsystematic use of kinestheic anchoring in touching their clients, and that couples frequently anchor bad feelings in each other. For example, if a client or spouse expresses sadness, and the therapist or other spouse offers comforts in the form of a hug, then later repetitions of that hug are apt to trigger the state of sadness associated with the initial hug.

NLP trainers describe how we can become systematic and intentional about the experiences we anchor in ourselves and others, and, hence, expand the choices currently available to ourselves and others. The process of anchoring an emotional state in another person is basically as follows: (1) the person to be anchored fully recalls a specific experience internally, representing all the sights, sounds, feelings, tastes, and smells he or she can remember, (2) the anchoring agent observes closely the development of behavioral manifestations of such internal responses (BMIRS, for short) in the other, and (3) at the point of greatest intensity or fullest expression of the BMIRS, the anchoring agent inserts a stimulus such as a specific touch, sound, facial expression, or gesture which will become associated with that internal emotional state. It is then possible to use that particular stimulus to bring back the same internal emotional state and the accompanying BMIRS, assuming that stimulus can be recapitulated exactly. In this manner, the anchoring agent may gain access to another person's various experiential states.

The process of anchoring can be discreet and covert, or it can occur with a person's full knowledge and cooperation, in which case he or she can theoretically reproduce the anchor at will to produce desired internal emotional states in his or her daily life. Anchoring is a basic tool which is put to many uses by neurolinguistic programmers. A single anchor can be installed to elicit a desired emotional state when presented. For example, a clenched fist might be a conscious self-anchor a person could use to access feelings of confidence, competence, high self esteem, and personal power. Or, the sight of an elevator button or a particular stairwell might be the anchor which elicits an appropriate, desired emotional state for work. Such anchored states may replace unpleasant, painful, self-defeating states. Other more elaborate strategies which use anchoring as a tool include (1) installing new resources in people to enable them to cope with phobias without being overwhelmed, (2) "changing personal history" by addressing some unfinished business of the past with the added resource of an anchored emotional state, (3) guiding a search through personal history to retrieve past experiences which have been forgotten, but which might be useful to examine relative to present behaviors, (4) using anchoring in couples or families to build stimulus-stimulus-response chains which enable desired outcomes in patterns of interaction, and (5) facilitating the "three place" disassociation technique which is useful in relieving people of the sufferings they experience as a result of severely traumatic past experience (Bandler and Grinder, 1979).

Tool 5: Marking

It should be clear by now that neurolinguistic programmers value unconscious resources and process along with conscious ones. Marking, like anchoring, may be either a conscious or unconscious process in which the marking agent articulates not only a content statement through some channel, usually the verbal or auditory digital channel, but also presents some other associated cues in other sensory systems which "mark" the content so that the essential elements are more perceptually salient. A marker is a meta-comment which usually has the effect of emphasizing, accenting, bracketing, or otherwise organizing a stream of communication behavior. Markers function as alerting systems, calling attention to certain points, or function as gift wrapping for ideas.

Natural marking occurs in interpersonal communication quite frequently and facilitates understanding. People vocally emphasize key words and phrases, altering tempo, pitch, articulation, and juncture patterns; they gesture in rhythm with their speech, pointing, shifting posture, and changing facial expressions; and they sometimes initiate touch at emphasis points.

NLP trainers themselves are masters at marking, and report the artful marking that many persuasive therapists integrate into their communicative behaviors. Markers can be visual, as in pointing, gesturing, striking a pose, effecting a particular facial expression, glancing in a particular direction, or nodding toward some visual stimulus present. Markers can also be auditory: a change in vocal tempo, pitch, tone, or diction can effectively mark off part of a sentence as distinct from the rest, at least as far as the unconscious mind is concerned. Kinesthetic markers may involve touch, the use of a particular space or distance for a second particular function, and so on, and the expression of one's own emotionality. Auditory digital markers, spoken or written, include numbers (1, 2, 3 or I, II, III); letters (in capital or lower case); figures of speech such as "on the one hand," which suggests "the other hand" is coming; and the use of correlative conjunctions such as "either ... or," "neither ... nor," "both ... and," and "not only ... but also."

NLP Magic and Visual Literacy

With the five previously described tools in hand, what particular magic can neurolinguistic programmers wrought that should be of specific concern to the field of visual literacy? Depending on individual interpretations of visual literacy, a number of potential areas of inquiry can be defined.

Using Anchors and Markers

First, if visual literacy concerns itself with the influence, effects, or outcomes of visual stimuli on people's thinking and/or behavior, then the uses and abuses of anchors and markers qualifies as an area of fruitful inquiry.

Imagine, for a moment, an ordinary classroom teacher in the year 2000, who is well practiced in the art and science of anchoring. His everyday technological interventions with students include noticing "test anxiety" symptoms in Johnny or the nearly extinct "math anxiety" in Mary. He purposefully designs and installs anchors in the two, "confidence" in Johnny and "curiosity" in Mary, and tests the anchors. If simple anchoring does not hook up the desired resources in a student, the teacher may refer him or her to the counselor who is skilled in more complex anchoring techniques and other tools which can provide students with the real choice of being confident about test taking or curious about learning math ... in minutes.

The ordinary classroom teacher of 2000 makes skillful use of marking as well as anchoring. He signals class routines by his consistent use of space: behind his desk, he takes care of managerial duties; sitting casually on a table, he facilitates a whole class discussion; sitting on a chair with a smaller group, he enters discussion; standing and walking, he presents new material. His presentation is marked digitally to emphasize main points, tonally to provide examples, and visually to add explanation.

The students of 2000 appear to pay attention to class activities almost constantly. A great deal of this can be explained in terms of the teacher's NLP skills in gaining and maintaining attention. Before beginning lecture or discussions, the teacher gains the attention of the class members, interrupting their internally generated experiences or their involvements in other pursuits in the external environment, by gently jolting the awareness of each in a variety of sensory models. A large sweep of the arm erases internally generated pictures, a click of a pen or a very light tapping on wood interrupts internally generated sound tracks, and a light touch elicits the attention of the kinos. A flick of the lights, the sound of a specific bell, the hanging of a sign: each has its process meaning and says, "do this now." Knowing that a student needs time to generate internal experience in response to what he or she experiences in the external environment, the teacher allows time, pacing his behavior to respect the process and silently interrupting those who would offer potential interruptions.

Before these visions become reality, a great deal of observing, thinking, informal experimenting and formal research needs doing. We need to discover the tools and techniques of the best of today's teachers. This is clearly a task for those trained in NLP.

Enhancing Rapport and Understanding

Second, when visual literacy is concerned with people's capacity or ability to perceive experience through the visual channel and to communicate in visual representations, then kinesic behavior (body language) becomes another important area of inquiry. An extensive literature has been accumulating in the last decade in the area of nonverbal communication, but it is neurolinguistic programmers who have articulated and demonstrated how this knowledge may be used as applied art in professional practice.

Several therapists have noticed that an important nonverbal manifestation of rapport or empathy is postural congruence (Scheflen, 1965; Charney, 1966; Buchheimer, 1963). That is, two people in rapport seem to imitate each other's body postures, either directly or in mirror imaging. Neurolinguistic programmers teach people to build rapport by intentionally mirroring the visible output behaviors of another person. They teach where to look, what to look for, how and when to sequence the move into mirroring (which they call "pacing") and how and when to begin leading (teaching, persuading) the other person. Similarly, interaction synchrony has been the subject of much scientific inquiry in the 1970's. The term refers to the rhythmic movements a single person exhibits relative to his or her own speech, or to the shared rhythms two or more people exhibit as they interact together (Gatewood and Rosenwein, 1981). NLP trainers point out how shared rhythms and vocal qualities as well (speed, pitch, volume, diction, articulation, and so on) may be intentionally imitated to achieve or enhance rapport.

Glimpsing again to the classroom of 2000, we observe a teacher who is flexible and fluent both verbally and nonverbally, both as a listener and as a speaker. As she communicates, she establishes rapport with her students, and is able to identify their primary representational system in minutes. Her training included development of visual, auditory, and kinesthetic senses; now she habitually and unconsciously matches posture, voice, facial affect, and representational system predicates as she communicates. The attention she holds in presentations is suddenly clearer to us. In addition to the anchored states of curiosity, confidence, and so on she triggers, and the effective marking she does, we notice that she builds and re-establishes rapport as a continuous part of her delivery or her listening. It is easiest to observe one-on-one, but as we observe her working with a group of students, why, yes, we see she mirrors the upper body posture of one person, the head tilt of another, and the vocal intonation and rhythm of still another. And listen to her; she uses predicates reflective of all the sensory systems. Painfully, we recall a teacher of 1980 and her student struggling to make sense of learning (and each other):

> Teacher (eyes up left, shoulders straight, head high, voice loud, clear, crisp): See? It's easy to identify postural mirroring. You'll see it at informal social gatherings, in meetings, at parties.
>
> Student (eyes down right, shoulders gently sloping, head bowed, voice soft and low): Well, I'm trying to grasp ahold of it, but it just doesn't seem to make sense to me.
>
> Teacher: Look. What you have to do is focus your attention on the viewpoint of the author and examine interaction from his perspective. That's all.
>
> Student: I don't feel right about watching people that way, it's an invasion of their privacy. It's uncomfortable for me.
>
> Teacher: Can't you see that we're trying to learn to achieve rapport. That's a good feeling!
>
> Student: I keep trying to sort this out. It's just that it all falls into place for me better when I get the vibes on another person ... you know, pick up on their rhythm and go from there ...

We are not even startled to find that the curriculum of the 2000 classroom includes communication classes reminiscent of Dune's Bene Gesserit training sessions and the old NLP workshops of the late 1970's and early 1980's.

Eliciting and Installing Thinking Strategies

Third, if visual literacy is concerned with learning style or skills apart from subject content, then the work on "thinking strategies" in NLP should provide the impetus for much research in the next decades. The term "thinking strategies" refers to the habitual way in which a person performs a particular mental task (Goleman, 1979). Thinking strategies include simple mental activities such as recalling information or spelling a word, or complex activities such as problem solving, future planning or writing a paper. The NLP team developed a calculus to represent thinking activities as follows:

Vc, Vm = visual construction or memory
At = auditory tonal
K+, K- = kinesthetic positive or negative
O/G = olfactory/gustatory
Ad = auditory digital
e = external
i = internal
E = external behavior
( ) = internal behavior

In order to determine a person's thinking strategy for a particular mental activity, a NLP trainer questions a person extensively, observing and noting accessing cues, predicates and physical cues. These are then reduced to a single formula using the above calculus. The formula representing the mental activity of good spellers is as follows: Ve(Vi→Ki)E. That is, good spellers (1) see a word spelled correctly; (2) create an internal picture of that image; (3) check that internally generated image kinesthetically, usually by accessing a positive or negative feeling along the midline of the torso; and (4) report the correct spelling (if K is positive) or that they do not know the correct spelling (if K is negative).

A pilot study was conducted by a team of researchers at the University of Oklahoma in the spring of 1981 to test this strategy for teaching spelling against a traditional rules approach (Austin, 1981). Fifty-six subjects referred themselves to the Counseling Center from freshman English classes, a CETA training program and an extra-curricular class. Half of the subjects were taught to practice the NLP strategy (see Figure 4) on 50 frequently misspelled words. The traditional rules approach was used to teach the other half of the subjects the ten most frequently abused spelling rules. Subjects were then given a spelling test of the 100 most frequently misspelled words. Subjects in the NLP condition did better at spelling the words they were trained on, and the rules acquisition subjects did better spelling the words that were exemplary of the rules they studied. At present, a second pilot test is underway with the following conditions being investigated: NLP strategy, traditional rules approach, a combination of NLP and rules and a control group with no training. Research such as this needs to be done to assess the effectiveness of various strategies for particular learning tasks.

$$V^e(V^i \rightarrow K)E \rightarrow V^e \rightarrow E \rightarrow V^e(V^i \rightarrow K)E \rightarrow V^e$$

1. V^e = look at the correct spelling
2. V^i = create an internal picture of the correct spelling
3. K = ask if it feels right (K+ or K-)
4. E = write it
5. V^e = check it with the correct written spelling
6. E = if an error occurs, write the word with the corrected letters in a contrasting color of ink
7. V^e = look at the color coded word
8. V^i = create an internal picture of the correct spelling, including the color coding
9. K = check if it feels right (K+ or K-)
10. E = write it
11. V^e = check it with the correct written spelling

Figure 4. Strategy Used for Spelling Experiment

NLP trainers suggest that most people rely on less than a handful of thinking strategies which they use over and over for a variety of mental tasks. They suggest that increasing the number of strategies in one's repertoire should enable one with greater flexibility and more choices. A NLP trainer recently asked a class of graduate students to visualize something in the future (Pucelik, 1981). One woman responded by accessing up right, constructing an image, then dropped her eyes down right, checking out how she felt about the constructed picture. She next moved her eyes down left for internal dialogue, and finally brought her eyes to rest down right and defocused. With this strategy, she was able to see and feel together, internally creating her own pleasure. However, the strategy was less than ideal when her kinesthetic responses were negative. In this case, what she had was a strategy for creating her own internal agony. The NLP trainer described her plight, which was all too familiar to the woman, and then installed an alternate strategy, one that would enable her to keep her old strategy as an alternative that is useful and beneficial to her. The new strategy enabled her to construct images without the attendant kinesthetic responses. Her original strategy may be represented as $V \rightarrow K \rightarrow Ad \rightarrow K/V$. The newly installed strategy may be represented as $V \rightarrow K \rightarrow Ad \rightarrow V$. With this new strategy, the woman is able to do future planning, including anticipating unpleasant outcomes, but without the attendant suffering she endured in the past.

Eliminating self-defeating strategies, or installing alternative strategies is the crux of much NLP work. Changing strategies involves teaching the unconscious a new way to organize or sequence internal and external experience. A strategy works automatically and unconsciously, guiding the structure of experience.

A brief look at the classroom of the year 2000 will enable us to project where the accumulation of knowledge in thinking strategies might take us. The class we observe is taking a standardized test; each student is working at his or her microcomputer on an interactive project to assess content knowledge, historically called achievement; present stock of thinking strategies, historically called aptitude; and a survey of emergent responsiveness, historically called interest inventories. The results of these periodic tests enable teachers to plan individual programs of study, to group students for joint learning activities, and to design thinking strategies to install into individuals to enable them to master content that is related to their immediate responsiveness to subject areas.

We notice that the old SQ3R method of reading is still in use, but for a limited range of subjects. Its strategy, Ve(Ad)Ve(Ad)Ve, has been determined relevant to the learning of some aspects of physical sciences, but a variety of other strategies have been developed for other content areas. One student is having a strategy installed which provides him with the skills deemed necessary for the understanding of human ethics. The strategy involves Ve(Vr/Vc→K→Ad)E. That is, the student reads an idea, recalls a visual representation of that idea, constructs other visualizations of the idea, then checks out his kinesthetic or feeling responses to the internally generated ideas. Then, internal dialogue follows, culminating in an external behavior which may be a point of discussion, a question, a note for future reference, or a behavior. A store of other strategies exists for teaching students to read literature, history, geography, logic, and so on. Reading plays has become great fun since students have had the strategies for creating internal representations of visual, kinesthetic and auditory experience only accessible to students in the 1980's in live, filmed or taped performances.

Conclusion

The essence of visual literacy lies in its view of the potential abilities of learners. That view, specifically, is an ambitious and optimistic one of what learners are capable of when you give them the right tools. In hundreds of visual literacy curriculum projects throughout the United States and abroad, the communication, thinking and problem solving abilities of students have been enhanced through visual language. In taking a broad view of language and visually-based capabilities, visual literacy curricula in schools have been successful in providing pupils with practical skills in visual thinking and communication and have provided powerful tools for learners who have experienced previous difficulty, to learn to read and write. Visual literacy is both an outcome of value in itself and a tool for achievement of other important outcomes. Rather than any particular attributes of teaching methodology, visual literacy is successful through providing learners with powerful skills and strategies--perceptual skills, learning strategies, and thinking strategies.

NLP's contribution to visual literacy could, conceivably, be in either or both of two sorts: (1) contributions to teaching methodology, and (2) contributions to school curriculum content. The methodologic contributions of NLP appear to be generic--they are not tied to any particular instructional strategy, pedagogic theory, or subject content. The relationship between methodology-based applications of NLP and visual literacy seems primarily to consist of an overlap between part of NLP (those aspects that concern themselves with the visual modality) and part of visual literacy (those aspects that concern themselves with what teachers do). From within this area of overlap, serious ethical questions about the use of these powerful tools arise relative to teacher education and teaching practice.

Although on the one hand, the existence of a new "technology of teaching" which is powerful enough to raise ethical questions can be a matter in itself of serious concern, we should at the same time realize that just in possessing such a technology, we have something which educators have wanted for a long time, i.e., non-trivial tools. In other words, if the power to influence thinking and behavior through use of NLP tools raises ethical questions, NLP is not a trivial technology. Examples of the ways in which NLP can be applied to teaching methodology can be seen in the spelling strategy described above and in the school of the year 2000 scenario. In each case, and others which seem possible, teaching methodology is more than merely what teachers do. An NLP-based strategy will involve installation of new abilities, or "strategies" in learners which assist them in approaching and achieving academic tasks at hand. Although important questions may present themselves regarding the proper use of the power to influence others which NLP can provide, we see no way that the interests of children and schools can best be served by ignoring NLP and the issues it brings to teacher selection, teacher training, the conduct of teaching, and school policy.

Contributions of NLP to visual literacy of the second sort, contributions to curriculum content, bring with them even more potential controversy than those just discussed. Here, NLP becomes content to be taught to students. At first, such a suggestion is appealing. Certainly it is one which visual literacy people would find natural. After all, visual literacy is a "power to the people" movement. At its core, visual literacy suggests that, instead of teaching concepts in astronomy, for example, through merely viewing a film on astronomy, students learn astronomy through also making their own film on astronomy. The student's astronomy film is an analogy to writing papers, reports, and essays about astronomy. So it seems similarly appropriate, within the visual literacy context, to suggest that students learn NLP. Due to the power of NLP tools, a great deal of caution, at the very least, appears warranted, both for the welfare of students in schools and for consideration of the practical realities of public reaction and acceptance of what goes on in schools. Teaching children how to use NLP tools as opposed to a professional teacher's use of the tools, for example, appears to be analogous to giving a child a 50-ton D-4 Caterpillar tractor to use to play in the dirt when a small shovel and MODEL Caterpillar tractor would be more age- and task-appropriate. Likewise, selected concepts from NLP should be considered from age- and task-appropriate criterial standpoints if any thought of NLP is to be considered as curriculum content in schools.

NLP, like visual literacy, is language-based but not language-bound. Unlike visual literacy, NLP is the cogent product of a single team of people. NLP is a body of knowledge; visual literacy is a movement. It seems to us that the movement has much to learn from this particular body of knowledge.

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DIALOGUE DESIGN FOR AN INTELLIGENT VIDEODISC SYSTEM

by

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Introduction

Microcomputers and videodiscs are being merged into a single technology called intelligent videodiscs. This new technology permits the interactive and text-generating capabilities of microcomputers to be combined with the realism of video and audio sequences. Such an increase in flexibility, however, poses a number of problems for the instructional designer because it multiplies the number and types of communication channels between humans and computers (i.e., computers are used here as the generic term since both video and computer-generated text appear on the same display).

The present paper will discuss a number of dialog-design principles and how these principles were incorporated into a videodisc project. The project was funded by the Pennsylvania Department of Education (PDE) through the Allegheny Educational Broadcast Council (AEBC) and the Pennsylvania State University. The project is currently being taken to public schools in the AEBC area and permits public school teachers to preview information and representative segments of Language Arts instructional television (ITV) programs.

Instructional Systems Design

Before discussing specific dialog-design principles, we need to examine the larger framework within which these principles operate. Instructional Systems Design (ISD) provides such a larger framework. A project to create an intelligent videodisc archive for public school teachers is a large-scale team effort. It is best managed from a systems point of view and is best designed in a 'top-down' manner.

The top-down problem-solving approach proceeds just as its name implies. It begins with the most general considerations first in a clear, simple, and logical manner. Hence, needs, goals, and constraints are articulated first. The goal-statements then provide a context and focus for all subsequent stages of the design process. In this way, specific dialog-design principles can be used without violating 'systems-level harmony' (i.e., all parts work harmoniously towards a common goal--both in the design process and in the operation of the final package). The latter principle is one of the main consequences of the ISD process.

The PDE Project Goals

The PDE project had two very general goals. The project was primarily intended to help public school teachers from grades K-12 search for and examine information and video segments from current Language Arts ITV programs--a kind of Sears catalog of ITV programs. The project was also intended to demonstrate the potential of intelligent videodiscs to teachers and help them overcome any 'computer anxiety' or 'technology anxiety' which they might have. These two goals were determined by the granting agency and guided the entire ISD process.

The top-down problem-solving approach helped the design team operationalize the project goals by forcing it to ask the most general question first: what would a naive user need to know and do in order to search for, and preview, various kinds of information? Note that the actual structure of the information was not fixed at this point in the design process. It was, in fact, specified as a result of this level of analysis. The answer to the question above was that each user would have to go through three general episodes of interaction:

1. an information-presentation episode where users were reminded of the intents and procedures of the actual interaction,
2. a choice episode where users could make both high-level and specific decisions in order to access the various types of information, and,
3. a final question-and-answer episode where users could summarize their experience and get some kind of closure.

These three episodes addressed the major goals of the project and constituted the highest-level protocol of the interaction. In abstract terms, these episodes constituted a kind of pre-defined cognitive strategy for negotiating a way through a complex information space (i.e., video, audio, and alphanumeric text). Different project goals would have resulted in another set or sequence of episodes.

Design of Specific Episodes

The information-presentation episode described above was the first of three general episodes in the human-computer interaction of the PDE project. How does one begin to design such an episode? The process again proceeds in a top-down manner:

1. first, state the episode goal in a clear and direct manner,
2. second, brainstorm as many ideas and considerations as possible to reach the episode goal,
3. third, select some of the ideas and considerations for meeting the episode goal and organize them into a sequence of human-computer interactions, and,

4. finally, clarify specific interactions between the human and the computer for that episode.

For example, the goal for the first major episode was that users be completely informed about the project goals and about the procedures for finding information in the next major episode. This episode goal was written down and pasted on the wall so that the design team could constantly see it.

The design team then brainstormed all kinds of ideas for meeting the episode goal. A brief description of each idea was written on a 5x7 card. The key consideration here was to be as flexible and free of specific solutions as possible. The ISD process always tries to avoid premature foreclosure.

The ideas in the stack of cards were then analyzed and organized into a rough sequence of interactions. Most of the original ideas ended up in the wastebasket. The remaining ideas were reformulated and rewritten. For example, the design team decided that the first human-computer interaction in the information-presentation episode ought to catch the user's attention. This idea eventually became a description of an introductory video segment. Since the overall flow of the interaction in the first episode was spelled out at this point, the design team could specify the general contents of the video segment (such as important terms and instructions). Systems-level harmony (i.e., the harmony of the specific interaction with the episode goal, and, ultimately, with the project goals) was thereby maintained.

A number of other examples will help clarify how the project goals were expressed in the first episode. Several interactions were included which helped the user 'look-ahead' at up-coming interactions or which reminded them of why they were there. There was even a page of text which was specifically designed to convey the idea that the user was in control of the whole process (the issue of teacher control is a crucial variable in the acceptance of new technology in the classroom). The design team also realized that too much information at one time would have been boring to a potential user. Consequently, several pages of personal and humorous information were incorporated into the overall flow of the interaction--a kind of comic relief. Such 'plausibility tricks,' such as addressing the users by their first names, however, were used sparingly.

We have seen so far how the project goals were broken down into three high-level episodes of interaction and how each of these episodes was broken down into descriptions of specific interactions. In each case, the design process proceeded in a top-down manner. The design team then broke each specific interaction into one or more pages for the video-display-unit (VDU).

Design of Individual Display Frames

The individual display frames were created with a number of design principles in mind. First of all, the design team decided that computer-generated text would not be written on top of moving video pictures unless it was absolutely necessary. Several practical considerations went into this decision:

1. The person responsible for the video component of the project had to begin work long before the final text of the human-computer dialog was established.

2. The technology for writing computer-generated text was too expensive (although purely video techniques for text-overlay were available), and

3. The pace of reading text was under the user's control whereas the pace of viewing moving visuals, once started, was not.

The design team then focused on the actual pages or frames for the VDU. Each description of the human-computer interactions on the 5 x 7 cards (described earlier) was analyzed and broken down into one or more VDU pages. The overall consideration during this iterative design process was to create computer generated text which was visually as well as semantically clear, simple, and direct. What is meant by this?

Visual clarity deals with how easy it is for the eye to pick up and follow the major stimuli on the VDU screen. Factors such as short sentences, centered and well-spaced text, and highlighted key words all contributed to the user's ability to zero in on the critical information. These layout principles have been known to graphic artists for many years. They are particularly crucial when designing the layout of text for a VDU screen because of the low text-information density of VDU's (i.e., the standard APPLE generates twenty-four lines of text with forty characters per line. Other microcomputers generate eighty characters per line but the point still remains). The goal of these visual principles was always to aid the user's eye in processing the key information as quickly and simply as possible.

Semantic clarity, simplicity, and directness was only achieved through a tremendous editing effort. For example, a statement such as:

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HELLO, I WILL
HELP YOU INTERACT WITH
THE AEBC VIDEODISC.
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had many hours of discussion, argument, and revision behind it. Every word was weighed and justified, or rewritten. Even the underlining was thoroughly examined. If you look at the statement above for a split second, the key idea 'YOU INTERACT WITH ... VIDEODISC' should remain embedded in your consciousness.

Each page of computer-generated text throughout the entire videodisc project contained a title line on the top and an options line on the bottom of the screen. These two lines of text provided a stable 'window' that visually 'anchored' the rest of the text on the screen. In many computer-assisted-instruction (CAI) screen layouts, you will find an actual box drawn around the entire text which creates the same window effect. The presence of such a constant visual stimulus makes the rest of the text on the screen easier to track with one's eyes and conveys a sense of visual permanence.

Finally, the text on any page of the videodisc project was not written 'instantaneously' on the VDU screen (although such an occurrence was technically feasible). Many teachers in a pilot study were very disconcerted when the text suddenly 'popped' onto the screen in its entirety. In some cases, teachers physically jumped back when the text appeared too fast. Hence, the rate at which the text appeared on the screen was slowed down to a speed which felt comfortable to the teachers in the pilot study.

Conclusion

The instructional systems design process described above resulted in an intelligent videodisc package which helped teachers search for and preview video and text information in a very user-friendly manner. The top-down approach helped keep each stage of the design process manageable. It even made the computer programming job a joy because the structure of the program (i.e., major and subordinate subroutines) mirrored the structure of the design. Initial reports from the field indicate that teachers are quite satisfied with their interaction with the PDE intelligent videodisc.

VISUAL IDIOMS: A THEATRICAL APPROACH TO VISUAL LITERACY

by

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In making this presentation, we have three general purposes in mind. First, we will briefly point out some of the general relationships between visual and verbal skills. Second, we would like to examine Theatre as a visual medium which involves skills that are an important part of visual literacy. Third, we would like to explore some ways in which Theatre can serve as a resource for developing visual literacy skills.

Visual and Verbal Skills

It is obvious that the relationships between visual and verbal skills are both numerous and complex. Descriptions of both types of skills, and of related behavioral objectives, include many common terms, such as "sequencing," "recognizing details and cause-and-effect relationships," "grammar," and "syntax." Both visual and verbal skills contribute to our knowledge of the world, and each supplements the other in many ways to increase this knowledge. The importance of this learning through the integration of visual and verbal knowledge has been stressed in much of the work related to visual literacy.

An important consideration for integrating the visual and the verbal is that many visual abilities develop much earlier, and to a higher degree, than verbal abilities. For this reason, a student's already acquired visual skills often serve as a resource for the further development of verbal skills. The idea that specific visual skills are vital to the development of early reading abilities, for example, has been a primary focus of work relating visual and verbal literacy (e.g., Barley, 1969; Blachowicz, 1973; and Debes, 1972). This importance of the visual is also evident in commonly accepted lists of reading readiness skills.

To further develop this idea of visual skills as a starting-point for developing verbal skills, we will focus on fairly specific categories of visual and verbal communication. The visual medium which we will be discussing is that of body language, specifically as it is used in visual emphasis techniques in theatrical presentations. The aspect of verbal communication of interest to this presentation will be the idioms which are found in our language and in all other languages.

Idioms: A Category of Verbal Expression

Although the term "idiom" may be taken to mean a regional or ethnic variation in a language, or the "language" of a particular medium such as film, the definition with which we are concerned is the following, offered by Adam Makkai, a noted linguist (1972, p. 28): an idiom is "a linguistic form whose meaning is unclear in spite of the familiar elements it contains." For purposes of this presentation, then, an idiom is a verbal expression that does not say exactly what it means. English contains thousands of idioms; a few examples might be "That really takes the cake," "He left things up in the air," or "Don't rock the boat." In any idiom, the literal meaning and the intended meaning do not correspond. This amounts to a lack of information, which the listener must fill in by recognizing the idiom as a cue.

Makkai points out that every language contains many idioms; his extensive treatment of idioms in the English language makes it clear that idiomatic expression is a vital part of the English language.

Why are idioms so important in language, and how is it that we are able to find meaning in them?

It appears that the ability to integrate visual and verbal knowledge, referred to earlier, plays an important role in addressing both of these questions. First, many idiomatic expressions seem to build on already acquired visual knowledge. Body language idioms, such as "show one's teeth," "turn one's back on," or "throw one's weight around," serve as examples of this sort of idiom. We learn to communicate through body language very early in life, and are familiar with the actions described by these idioms. The feelings and intentions which the actions express will be readily apparent to us, particularly if we are able to visualize the actions. The meanings behind such idioms are highly emotional or abstract. Idiomatic expressions are a very effective means of expressing these meanings, since they relate verbal expressions to visual knowledge and experiences, which we are familiar with or are able to visualize readily. If a listener possesses the relevant visual knowledge and is able to integrate it with the words in an idiomatic expression, idioms of this sort can simplify the verbal expression of many concepts. Consider, for example, the clarity of describing someone as "a square peg in a round hole," and then try to formulate a nonidiomatic verbal expression that is equally concise and descriptive.

Second, idiomatic expressions often evoke strong visual images which have little relevance to their intended meaning. If idioms like "Don't count your chickens before they're hatched," "Washing dirty linen in public," or "Upsetting the applecart" are to make any sense in context, the listener must have an understanding of the "moral" or "story" which is the intended meaning. If the phrase is not recognized as an idiom, and is instead taken literally, it will make little sense.

An interesting question is whether there is a tendency for children to fail to recognize these idioms as idioms, and instead form literal visualizations of them. It seems possible that, once the concepts behind them are understood, such visualizations of verbal expressions acquire a mnemonic function since they initially provide vivid mental pictures. The fact that idioms like these are so often used in our language indicates that they are easily remembered, and have a readily apparent meaning for most of us. They seem to serve as a visually-based shorthand for communicating complex concepts with relatively simple language.

These points about how idioms function in language are premised on the importance of integrating visual and verbal knowledge in thinking and communicating. The question which arises is this: What can be done to develop this ability to integrate the visual and the verbal, to a degree that knowledge acquired through observation and visual communication can be used to give meaning to words made of letters printed on paper? Makkai (1972, p. 25) points out that "guessing" is an important factor in interpreting unfamiliar idioms. It would seem that the more knowledge that a listener is able to utilize in making such a guess, the more likely the guess is to be successful.

Idioms are often problematic for young children, and for those just learning a new language. Even if all the words in the idiom are familiar, it may be difficult to relate the idiom to its intended meaning. It may also be that the listener is completely unfamiliar with the visual image or action which the idiom would usually evoke. "Taking the bull by the horns" will not have much significance for a child who has no idea what a bull is.

Visual Literacy and the Intepretation of Idioms

What does visual literacy have to offer someone who is confronted with an unfamiliar idiom, or someone who is unfamilar with some term used in an idiom?

First, visual literacy skills may increase the child's tendency to look to his/her own already acquired visual knowledge for assistance in interpreting the verbal message. We have already pointed out that visualizing the situation presented in an idiom, or relating it to personal experiences, may make its meaning clear. This visualization of the verbal is one way of integrating the two modes.

This also suggests that idioms may be used as material for practicing visualization and visual communication skills. Many idioms provoke vivid mental images of objects or actions. These can be creatively translated into visible expressions such as drawings or acting-out.

VL skills will also be very helpful in communicating the intended meaning of an idiom to another person who is completely unfamiliar with it. Acting out the sequence of events involved in, say, "putting the cart before the horse," could be both challenging to the actor and enlightening for the person who is trying to interpret the idiom.

At this point, the potential of Theatre as a medium for communicating the actions or story involved in an idiomatic expression may become apparent. With this view in mind, we now shift our focal point to a brief analysis of Theatre and its potential as an instructional tool.

Theatre and Visual Literacy

While oftentimes similar to film and television in its visual content, the Theatre, by necessity, relies on non-mechanistic symbol systems to deliver its message. Where modern technology dictates the gaze of the TV viewer or movie-goer, through such means as "zooming" in and out, changing from a long shot to a close-up, and so on, a variety of other conventions are used during a stage presentation to both direct the view of the audience and aid in the play's interpretation.

First categorized by Alexander Dean in the early 40's, the techniques of visual emphasis, which he calls picturization, are evidenced much earlier in the scripts of Sophocles, Shakespeare, Moliere and other classical playwrights. Although some of these conventions may also be found in other media forms, several appear to be indigenous to the performing arts and Theatre in particular.

Generally discussed under such headings as composition and "blocking," the skills of visual emphasis comprise a great part of a theatre artist's early studies. While simplistic in scope, they, along with the tacit skills known as the Inner Resources (concentration, observation, sense recall, imagination, and emotional response), embody the very essence of a performer's portrayal. The seven visual emphasis skills (body position, stage area, focus, isolation, contrast, level, and triangle) are defined and illustrated below. Each may be thought of as a means of directing the gaze of the viewer onto the one performer who, at any given moment in the life of the play, is most responsible for imparting its message. These skills serve to give the spectator visual clues as to who is the most important person on stage during each segment of the presentation.

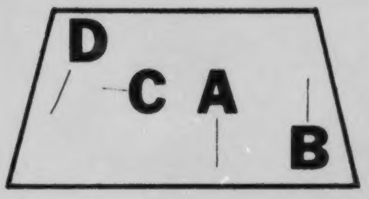
These seven commonly-used visual conventions call upon a number of elements in Debes' well-known list of 23 visual skills. The use of these skills by the viewer of a play underscores theatre as a tool for visual literacy. Because of theatre's potential as an instructional medium, it is apparent that there exists within the medium a vast storehouse of methodologies and strategies useful for visual literacy education in the classroom.

Composing an Effective Stage Picture

A director, writes W. David Sievers (1965), may be said to "direct not the play itself but the attention of the audience to the play, compelling the spectators to look where he wants them to and anticipating their emotional responses." Such is the function of the techniques of VISUAL EMPHASIS, as described by the conventions below.

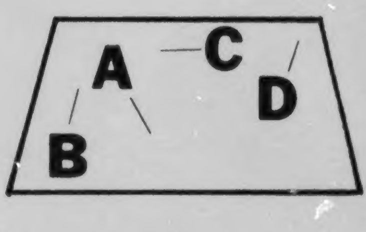
1. Through the actor's body positions:

Generally, that performer who stands in a full-front position is regarded to be more visually dominant than the others on stage. In each of the diagrams to the right, character "A" is in emphasis, and will be the one likely looked at by the audience. (The short lines indicate bodily position relative to a viewer's perspective.)



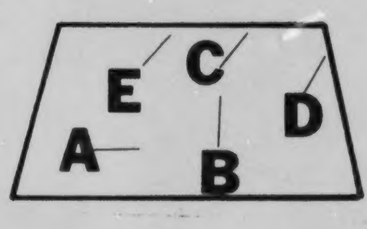
Other, less dominant positions include:

* one-quarter, where the performer stands at a 45 degree angle to the audience, is the next stongest;



* profile, in which the actor is positioned at a 90 degree angle to the audience, is the next strongest;

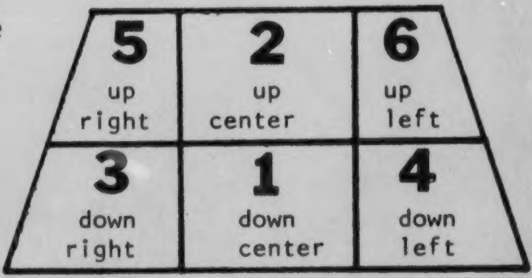
* three-quarters, a position midpoint between profile and full-back (see below), is a relative weak stance; and



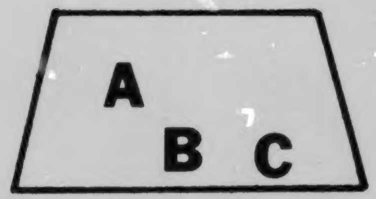
* full back, where the performer faces upstage, is the weakest position.

2. Through the use of Stage Areas:

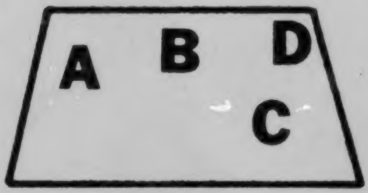
The diagram below illustrates the relative strength of the various stage areas. Area "1," representing the down center portion, is generally regarded to be the strongest playing area, whereas area "6," that is the up-left portion, is normally reserved for the weakest of scenes. In each of the diagrams to the right, character "B" is emphasized by his relative placement on the stage.



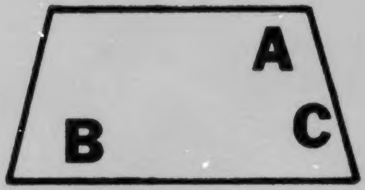
It is obvious why areas 1 and 2 are placed where they are; being in the center, they are nicely framed by the other areas and those performers who may occupy them.



What is perhaps more interesting is the rationale behind the greater emphasis or importance of the down right portion of the stage relative to down left. Theorists suggest that, due to our conditioning in reading in a left to right fashion, which corresponds to the right and left sides of the stage, respectively, the viewer of a visual image is most apt to look at her left and then to the right. Alexander Dean (1941) has substantiated this notion by observing the audience's collective gaze as the curtain rises.

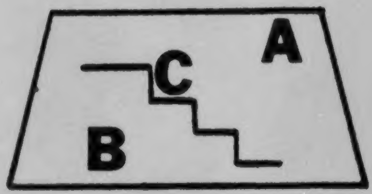


Support for this belief can also be seen through an analysis of Chinese theatre, which occurs in a culture where people are conditioned to read right to left. Here, dramatic convention maintains that it is the down right portion of the stage that is most visually dominant. Traditionally, the hero in a Chinese performance will always enter from the right; villains, on the other hand, first appear at stage left.



3. Through the use of Levels:

With the other theatrical elements considered equal, that performer who appears "taller" than the others on stage will be regarded as the most important person at that moment in time. The diagram to the right illustrates this convention.



Some obvious applications of this technique are:

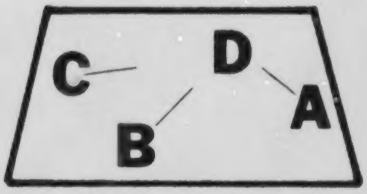
* An actor standing is stronger than those sitting

* Sitting, though, is more important visually than lying down

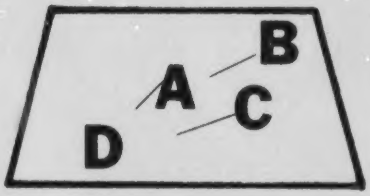
* A performer elevated by scenery (e.g., stairs, risers, etc.) is also dominant

4. Through the use of Focus:

When other actors focus on, that is, look at, a particular performer, the audience will tend to do the same. In the diagrams to the right, character "D" will be perceived to be the most visually dominant through the use of this technique. (The short lines again indicate the direction of performer's gaze.)

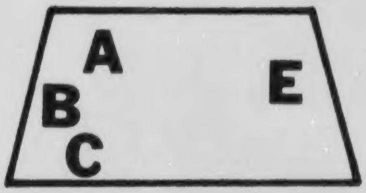


Variety to the overall composition may be easily achieved through counter-focus, where a performer looks away from that actor the others on stage are looking at. Here, though, the character of most emphasis will have to rely on additional means for dominance, which is usually accomplished by the dialogue accompanying most stage pictures.



5. Through the use of Isolation:

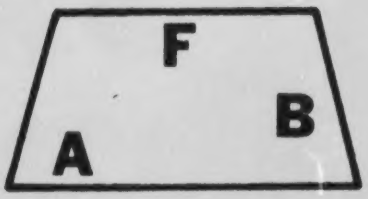
As seen in the diagram to the right, a given performer, character "E" in this case, may be put into dominance by becoming physically separated from the others on stage.



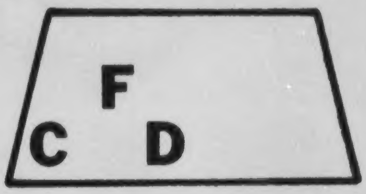
This technique is oftentimes used to negate the effects of stage areas, where one actor may move into isolation from a group of others, positioned at down right, for example. Of course, that performer in isolation must verbally and/or visually justify this action.

6. Through the use of Triangles:

Perhaps the most commonly used visual emphasis technique, the convention simply states that the actor positioned at the apex of a triangular arrangement will be visually perceived to be the most important person in the scene.



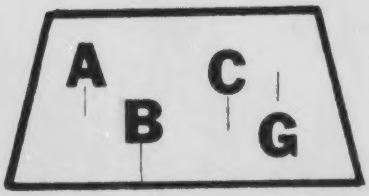
Unfortunately, this device is many times over-used, frequently to the point of monotony and viewer boredom with the visual composition of the play. Thus, such patterns often seem to be prearranged and detract from the spontaneity



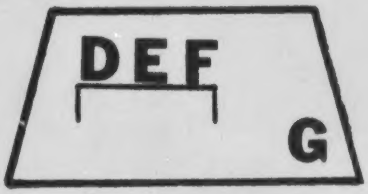
of the performance. The diagrams at the right, above, illustrate common triangular emphases; in each, character "F" is dominant.

7. Through the use of Contrast:

This technique, too, may be used to negate the power of some of the other conventions, as well as serving as a visual tool in its own right. Frequently, as illustrated in the accompanying diagrams, one actor may appear dominant simply by being different than the others on stage.



In the first illustration, for example, the full-back position of character "G" may well allow her to be viewed as most important.



In the second diagram, because performers "D-F" are positioned on risers, actor "G", by being in contrast (at a lower level) is expected to be dominant.

In addition to physical placement, such devices as differing costumes, lighting, facial expressions, and so on may be used effectively as elements of contrast.

Theatre Games and Exercises

The natural tendencies of children to engage in games of pretend and make-believe are well documented. Studies from such areas as self-actualization, counseling, and clinical psychology further support the utilization of drama, role playing and improvisation as instructional tools. Those of us who view visual literacy as an important part of the basic educational curriculum would do well to take note of these indicators.

Following a number of common theatre games are described. These activities have been adapted to focus on the visual/verbal contentions suggested above and, additionally, to illustrate the utilization of dramatic play as an exercise in visual literacy training. While many of the skills developed have been catalogued under one of Debes' hierarchial abilities, it is important to note that any given activity may be used in a variety of instances by the classroom teacher.

Recognize Differences and Similarities in Shape:

1. Statues

Here's an enjoyable game in imagination that asks players to communicate with just shape and design. Ask for five or six volunteers. All but one assume a position on the floor that represents lumps of clay. The other player is the artist who is asked to mold the lumps, first as separate statues and then as one large shape where the lumps must be touching each other in some way. Expand the game by having a different artist mold the clay around some theme, such as "friendship," "fear," and so on. Interesting shapes always result and illustrate the point that effective, imaginative communication can occur without words.

2. Be a Tree

Here's one of the classic exercises from the "method" approach to acting. Several players lie on the floor in a doubled-up fashion. Instruct them that they are to pretend they are seeds of trees and that, in a few moments, you will ask them to grow. The game is primarily one of movement in that players are to move, that is to grow, as slowly as possible. As they begin, tell them to experience growth first in just the toes and finger tips. Tell them to further feel the growth as it spreads throughout their arms and legs. Eventually they will rise to a kneeling position, continue to grow until they are standing, arms outstretched and representing full grown trees. Because each "tree" will grow at a different rate, it is important to maintain a quiet atmosphere until the last player is done. Conclude the game by asking each to identify the tree he/she is representing.

Perceive Movement:

1. Mirrors

This activity is useful with all ages of players. Participants work in pairs. One becomes a mirror and attempts to copy as closely as possible the exact movements of the other. Initially, suggest that all movements be slow and deliberate, working with only the hands and arms. Watch that the mirror does not try to "anticipate" moves, but only responds to the initiation of movement. Later, progress to motion that is both more subtle and more exaggerated. Have players switch roles.

2. Play Ball

This is a favorite game of professional actors. Players sit in a circle and an imaginary ball is produced. A game of catch follows. In addition to its invisibility, the ball also has the power to change. It may become larger, smaller, heavier, made of mud, made of ice. The possibilities are endless as the game tests players' imaginations and the visual skills of observation and sense recall.

3. Take a Walk

Have players stand in a large circle, facing the same direction. Tell them that they are about to play a game that will ask them to both concentrate and also rely on their powers of sensory recall as they participate. Students begin walking in a circular fashion at a slow, natural pace. As the game progresses, the instructor will change the environment or locale of the walk. For example, have players walk:

a. leisurely, enjoying a summer day;
b. quickly, as if late for school;
c. barefoot on a sandy beach;
d. barefoot over sharp rocks;
e. on ice;
f. through dry leaves, trying to sneak up on someone;
g. on the moon;
h. with a right foot stuck in a bucket;
i. on a 5000-pound marshmallow.

Read Simple Body Language and Make Simple Body Language Utterances:

1. Carry on Mime

In this exercise, players are asked to simply carry an imaginary object from one end of the room to the other. Because you will assign a different object to each participant, observers should notice a variety of motions. Some examples might be to carry such objects as: an expensive vase, a handful of cooked spaghetti, a small baby, a hot potato, a large rock, a live pig, etc.

2. Mime in Character

In this exercise, a group of players are all given the same activity. Variations occur in that each is asked to assume the identity of such characters as Paul Bunyan, Goldilocks, Adolf Hitler, and so on. Try to devise activities that will take about 60 seconds to complete. Consider such topics as changing a diaper on a baby, cooking dinner, changing a flat tire, and the like.

Recognize Groups of Objects Commonly Seen Together:

1. Machines

Here's a role playing game that not only challenges the communicative skills of the players, but the observation abilities of the audience as well. The object is for a group of players to, first, create their own machine by using parts of their bodies and collectively agreed upon physical motions. One will initiate the action by taking stage and enacting the movement of a machine part; for example, moving up and down like a piston. As others feel "motivated" to join in, they individually attach themselves to the pieces already in motion. Each new motion must be agreed upon to the extent that it may not hinder or prevent other parts from completing their motions. As a variation, give learners a specified machine that they must build. Allow players, for example, to consider what a new and better mouse trap would look like. Give them several minutes to prepare and then let them show their efforts to the audience.

2. What Did You See?

This exercise tests the concentration skills of participants. Randomly located on a table in the room are a dozen or so objects that have been covered with a cloth. Objects used should have some relationship to each other (e.g., a comb, brush, hair ribbon, a hat, etc.). Tell players that they will have about 30 seconds to observe the collection as you remove the cloth. Re-cover and ask them to make a list of as many of the individual items they can remember. Make the game more complex by using unrelated items for a second set of players.

Perceive Distance, Height And Depth:

1. Stage Picture

This is a variation of the Statues game described earlier. Again an artist is asked to work with several lumps of clay in the creation of a statue. Here, though, a more challenging activity is assigned. Prepare in advance several cards, where each one contains a statement or phrase. It then becomes the task of the artist to communicate that message solely through the use of shape. The cards may contain well known sayings or idiomatic expressions; they may be well known titles; or they may be simple statements, such as "I love a parade," "Stand back! It's about to blow!" or "My goodness, you've killed him." You may also experiment with visual emphasis techniques by additionally requesting that the artist employ one or more methods like contrast, isolation, levels, triangles, and so on.

2. Runt of the Litter

This has proven to be a favorite of all ages. The concept is this: players are to imagine they are shrinking in size. Get them to believe, in fact, that they are now but two inches tall. Then present a situation. One that works well is to have each further imagine that they are located on top of a table that has been set for an evening meal. There the players will find plates of food, cups, silverware, platters and so on. Distribute cards that contain simple activities that could occur. Some classics that have been used include: making a snowman in a bowl of mashed potatoes, tying pieces of cooked spaghetti together to make a rope with which to escape to the floor, and making a phone call. Suggest to the players that they will find it much easier to imagine the things around them to be much larger, rather than attempting to "act" in a hunched over or slouched state. Be prepared here; almost anything can happen. You can also vary the assignment by changing its locale. Place the "runts" in the family attic or in Santa's workshop and see what happens.

Read a Sequence of Body Language Arranged to Create a Desired Emotional Reaction:

1. Trapped!

In this game players will experience emotions such as fear, panic, frustration, and confusion. Call for five volunteers and explain to them and the audience that very soon three plays will occur simultaneously. Each play will have the same title: "Trapped." Tell the players that they must concentrate and believe in what they are going to be doing. The first two players are trapped inside a cave; two others find themselves caught in a tin can; the last is a prisoner inside a phone booth. At your signal, their performances, done in mime, are to begin. Watch how each attempts to escape; more so, try to see their emotional reactions registered on their faces. After each play concludes, regroup the cast for part two of the exercise. Describe the following. The five players are inside a small room that has no doors or windows. There is no explanation as to how, when, or why the group finds itself where it does. However, they shouldn't feel too upset at first; the room is rather pleasant, it has some nice paintings on the walls, and there's a plush carpet on the floor. Shortly after their play has begun, however, they are to imagine that the walls suddenly, though slowly, begin to move inwards. The ceiling starts to lower. Their task is to either escape or perish; the choice is theirs. Remind them that the longer the play goes on, the smaller the room gets. Review the piece with the audience, asking them to identify and recall the actions that occurred.

Some Additional Games (adding the verbal to the visual):

1. Stanislavski Revisited

This is an improvisational game that uses groups of three. Players will receive cards, printed on which are the names of inanimate objects. Allow groups several minutes to prepare a 3-5 minute scene that tells a story where performers are free to give life to the objects they are to portray. Some sample cards would be:

- a. three used cars on a lot
- b. a flat tire, a jack and a spare
- c. three basketballs
- d. three dumb jokes
- e. three marshmallows getting roasted
- f. three pieces of bacon frying in a pan

2. Enter a New Character

In this improvisational exercise, three or four players will begin a scene as suggested by a card you've prepared. At your signal, another player will enter the scene, and will "motivate" the others to quickly change their actions. Allow all players to collectively plan their scene for several minutes prior to the enactment. Some interesting topics might be:

- a. some old folks sitting on a park bench ... enter a hippie
- b. fish caught in a net ... enter Charlie Tuna
- c. chickens in a barnyard ... enter Colonel Sanders
- d. small children staying up late on Christmas Eve ... enter the real Santa

3. Tag Line

Small groups of players are to devise scenes that will be logically ended by a statement supplied by the instructor. Performers should be allowed about 10 minutes to plan, determining character, plot and last line assignment. That person speaking the tag line should somehow be visually dominant. Some examples of tags might be:

- a. So it was Harry all the time.
- b. There goes the last one.
- c. We'll stay together, through thick and thin.
- d. You took the words right out of my mouth.

4. Moving Group Objects

This exercise works best with 5-10 players. Place them in a circle and explain that they are surrounding a huge boulder. The purpose of the game is to work as a team in moving this weighty object to the other side of the room. Players are free to verbally communicate during their task. If properly executed, observers will be surprised at the realistic portrayal; the players themselves will also be surprised at how tired they feel at the conclusion.

Theatre and Idioms: More Suggestions and Activities

Below are descriptions of activities which involve the use of idioms. Each incorporates a number of skills, both verbal and visual. You may find these activities useful for some of the following purposes:

- to make students conscious of the importance of body language as a means of communication
- to encourage students to view language as a creative process which often develops out of visual skills
- to encourage students to use visualization as a means of interpreting language
- to allow students to examine their own and/or others' variations in language, through comparison of idioms and the meanings behind them
- to introduce limited English proficiency students to common American idioms

1. Representing Idioms

Provide several students with a highly visual idiom, or have them select one. Ask students to create a visual representation of the idiom, using whatever medium seems appropriate. Later, compare the ways in which students chose to represent the idiom, and encourage them to identify the features of each representation which best communicate the idiom's meaning.

2. Idiom Charades

Have a student select and act out an idiom, while others guess what it is. Then, discuss the elements of the charade which made the meaning apparent. Ask about other ways in which the same idea could be communicated. Have students identify whether the charade conveyed the literal or the idiomatic meaning of the idiom.

3. Body Language Idioms

Ask students to enact idioms that describe body language (throwing one's weight around, tearing one's hair, laughing up one's sleeve, etc.). Then, have students describe the feelings they think are represented by the idiom.

4. Translating Idioms

Give students a sentence containing at least one idiom. Ask them to rephrase the sentence, writing out the idiomatic meanings instead of using idioms. It should soon become apparent that expressing meanings without using idioms can be an awkward process.

5. Comparing Idioms

Ask students to use idiom dictionaries or their own resources to find more than one idiom that expresses the same meaning ("That's a fine kettle of fish"; "You're certainly in a pickle"). Have them try to guess the origins of the meanings of these idioms.

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--defines the basic principles of Visual Literacy and the various categories of visual language. The article goes on to describe the developmental and social foundations of Visual Literacy and offers justification and practical suggestions for implementing VL activities in the classroom.

Barley, S. B. Behavioral Objectives for Classroom Experiences in Visual Literacy. Rochester, NY: Eastman Kodak Co., 1969 (ED 009 428).

--briefly delineates behavioral objectives for VL experiences. The categories of skills include: attitudes; informative, persuasive and general communication skills; aesthetic/recreational skills, skills related to visual concepts and skills in reading visual materials.

________. A New Look at the Loom of Visual Literacy. Rochester, NY: Eastman Kodak Co., 1971 (ED 057 585).

--describes contributions of semantics, linguistics, art, philosophy, psychology and the practical arts to defining and understanding VL. Specific researchers from each field are cited. A number of suggestions for using film and photography in various classroom contexts are offered. The necessity of cooperation between educators and the creators of visual products for classroom is emphasized.

________. A Visual Literacy Approach to Developmental and Remedial Reading. Rochester, NY: Eastman Kodak Co., 1969 (ED 057 583).

--suggests ways in which VL activities may be used as an alternative instructional strategy. It is proposed that pictures, as a primary form of instructional language, can be used to develop the skills necessary for success in reading. Serial ordering of pictures, creating stories from pictures and related activities allow children to develop sequencing, verbalization and vocabulary skills from already-learned visual abilities. The potential of such activities for influencing psychomotor and affective characteristics is also discussed.

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--lists a variety of sources dealing with the relationships between visual and verbal skills.

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--traces the historical roots of the Theatre by discussing the relationship of contemporary production theory with the conventions of the past.

Cochran, L. M., Younghouse, P. C., Sorflaten, J. W., & Molek, R. A. "Exploring Approaches to Researching Visual Literacy." *ECTJ*, 1980. 28:4, p. 243-66.

--discusses educational media research as it relates to VL. The article advocates an interactive, cognitive approach for future research and presents a paradigm within which such research may be structured. It is concluded that VL research should focus on characterizing internal and external structures of meaning and the relationships between them.

Dean, A. *Fundamentals of Play Directing*. NY: Wiley Publishing Co., 1941.

--the most frequently cited theory of visualizing the dramatic event. The author describes several of the most common techniques of achieving visual emphasis on stage. Referred to as "picturalization," these include body position, stage location, contrast, focus, isolation, triangles and levels.

Debes, J. L. "The Loom of Visual Literacy." *Audiovisual Instruction*. 1969, 14:8, p. 25-7.

--presents a hierarchy of Visual Literacy skills and the most generally accepted definition of Visual Literacy.

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--the ability to read words well is presented as a subset of the ability to deal with visual signs in general. The implication which follows from this position, that learning experiences in reading should be based on already-acquired visual language ability, is discussed in detail. A number of visual language skills are described and specifically related to verbal skills.

Gross, L. "Modes of Communication and the Acquisition of Symbolic Competence." in Olson, D. R., Media and Symbols: The Forms of Expression, Communication and Education. Chicago: University of Chicago Press. Seventy-third Yearbook of the National Society for the Study of Education, 1974.

--thought and knowledge are discussed as active processes which occur in five primary modes (linguistic, socio-gestural, iconic, logico-mathematical and musical). The concept of competence as a necessary condition for creative and productive performance within a given mode is presented, and it is noted that, in our present society, such competence is largely linguistic or socio-gestural. It is suggested that greater educational emphasis be placed on acquisition of competence in additional modes which are relevant to effective functioning in present culture.

Makkai, A. Idiom Structure in English. The Hague: Moutan and Co., NV, 1972.

--a major work dealing with the usage of idioms in the English language. The text presents an overview of earlier definitions of idioms and a more rigorous definition. It also contains a detailed presentation and classification system for English idioms.

Ragan, T. Insights on Visual Capacities from Perceptual and Cognitive Styles. Conference Report. Kansas City, MO: AECT, 1978 (ED 179 228).

--similarities between cognitive style measures and tests of reading readiness and perceptual development are detailed. It is proposed that development of Visual Literacy skills may lead to more proficient performance on both types of measures. Sample items from test instruments and a list of test sources are included.

Randhawa, B. S. "Intellectual Development and the Ability to Process Visual and Verbal Information." ECTJ, 1974. 19:3, p. 298-312.

--discusses information processing in the individual as a function of development. A model is proposed in which processing abilities involving verbal output change more with development than do visual processing abilities. It is suggested that skill in translating from one mode to another is a primary limiting factor in information processing.

Salomon, G. "Media and Symbol Systems as Related to Cognition and Learning." Journal of Educational Psychology. 1979, 71:2, p. 131-48.

--outlines the need for research dealing with symbol systems characteristic of media and with their relationship to cognition

and learning. Research conducted to date is included; it is proposed that symbolic elements used by media can facilitate the acquisition of mental skills.

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--presents an overview of the Theatre medium for the director of the dramatic event. Included are discussions concerning the voice and body as tools of the actor, presentation style, composition and blocking, interpretation and presentation of the play's message by both verbal and visual means and the roles of those involved in the "Living Theatre."

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--an activity text for the development of inner resource skills for performers. Included are theatre games focusing on the techniques of concentration, observation, sense recall, imagination and emotional response.

Wileman, R. E. Exercises in Visual Thinking. New York: Hastings House, 1980.

--describes effective ways of communicating with visuals. The text includes a classification scheme for representations of objects, as well as a number of exercises which allow the reader to design verbal/visual messages.

THE MIGHT OF METAPHOR

by

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Part I: The Scope of Metaphor

> "It is on the varying responses to similarity that the ultimate rise or fall of man depends."
> Silvano Arieti

My hypothesis is that imagery in its various representations within the human brain-mind has fostered the evolution of all our forms of language.

One fact of human communication can be cited to testify for the validity of this assertion. It is the continuous use of metaphorical processes to seek, record, convey and connect both old and new meanings.

The metaphor at its most concrete point in the communication process is characterized as a "figure of speech"--its narrowest and most specialized conceptualization. In its largest function it appears as myth.

Metaphors are ubiquitous and obvious in language use. They exist in large variety in their closely related, concrete comparative forms of simile, metonomy and synechdoche. But their existence in past usage is not so obvious in spite of their continued influence on thinking and conceptualization. We are no longer conscious of the "faded" and "dead" metaphors (Hayakawa, 1972) that form a large part of the lexicons of our languages. The bodies of the vernaculars and literary language are "infected" with new meanings of old metaphors. The process of how this occurs, called agrammatization (Levine, 1977) is constantly and sometimes shockingly visible in the cyclical evolutions of slang, jargons and argots, many of whose terms move slowly or rapidly into common usage.

Myths are metaphors writ large. Joseph Campbell has illuminated magnificently myth's consistent role in providing living pictures of

AUTHOR'S NOTE:

Continued development of this theme has called for dividing into two parts the presentation made at the Lexington conference. Part I: The Scope of Metaphor, has been prepared for inclusion in the post-conference readings. Part II: The Growth of Metaphor, will be completed subsequently.

human belief patterns in world cultures (Campbell, 1968). Even the modern historian must acknowledge the scope and importance of myth. William H. McNeill, for example, writes:

> "... Truth, in short, does not reside in the exact recording of every detail. It never has. Instead it resides in myth--generalizing myths that direct attention to what is common amid diversity by neglecting trivial differences of detail. Such myths make subsequent experience intelligible and can be acted on. When results conform to expectations, truth has been tested and the mythical formulation gains or retains plausibility. When experience contradicts expectations, it is time to mend the myth, if one can ... " (New York Times, Ed Op Page, 12/28/81)

Looking at metaphor in its broadest and narrowest functions, it can be seen as a major tool in the human communication process. As a method for processing information and belief it must be accepted as natural to Homo sapiens.

Few concerned with metaphor would argue against the conception that it is a highly significant tool in the workbox of human communications. Certain points can be made if we can follow this analogy for a while.

It is intrinsic to the nature of any tool that it extends human capacities. If we can explore metaphor from this direction, perhaps we can illuminate more clearly its role. So we must look into the human capacities that might be enhanced by the large variety of metaphorical processes our brain-mind has evolved.

We must establish its nature as a tool. We must examine the hierarchal structure in man that has fashioned it and created its forms. Can there be a central formative process that has provided "coordinating conditions" (Whyte, 1965) for its effective utilization?

I believe the human imagination performs this function. Metaphor is imagination at work in a specific way, processing information from within and from without to achieve a particular kind of communication that has been highly important for human survival. Imagination performs a synthesis of image and concept (word), motivated by a particular feeling or sensitivity, that can achieve a diversity of novel meanings. The result often is an extension of man's information about the outer world, understanding of emotions, and the dissemination of ideas and beliefs. This engendering of novel syntheses is characterized by Whyte as the use of the "creative imagination" (Whyte, 1961). It is a manifestation of the remarkable plasticity of the brain processes and particularly of the "uncommitted areas" of the neo-cortex (Arieti, 1976).

The use of imagination has clearly served as a selection process for man's survival, at least until our era. If our creative imagination is to continue to serve as a facilitator of human civilization and move it to higher levels of achievement, in our context we may ask how best can the tools of metaphor be used?

To give any sort of coherent and relevant answer to this seemingly esoteric question, we must relate the various ways language is used for man's purposes. Then we must place metaphor not so much in its role in the formation of language, but in its evolution within the brain-mind and in usage. For the metaphorical processes themselves could only have reenforced their own functions as influencers or facilitators of human problem solving.

As a set of concrete processes of the imagination, what are the characteristic functions metaphor performs as a tool also of the mind? What does it accomplish in its concrete manifestations in language and in its other modes of expression?

A tool is constructed out of a particular material to fill a particular need. Indeed, it is perhaps the true genius of man that he has been able to create tools to extend almost all of his developed capacities.

Let us look for one moment. A mallet, for example, is used to pound, to exert a concentrated force on one board to force it into a notch in another board; or, consider a modification, the hammer. It is used to exert a concentrated force on a fastener like a nail or spike to push it through a wooden board into another to hold them tightly together. In working metal, however, to make a horseshoe or trivet, the hammer will have a different shape for the job and its functional context will be broader. Its concentrated force would be ineffective unless an anvil or other hard surface supports the metal to be fashioned. Even the material itself needs special conditions, must be heated, in order that the tool function properly. The development of tools can be represented on a continuum of functioning that ranges from direct simple operations to highly intricate ones in which other necessary highly complex conditions dictate the effectiveness of the tool.

The very shape of every tool is conditioned by its role in the total environment of its use.

The Environment of Metaphor

The total environment of the metaphorical processes encompasses four interrelating contexts:

1. The creator or user of the metaphor. This will be either the individual (synchronic source) or a tradition or culture (diachronic source).
2. The meaning to be expressed. This will be the subjective sense-of-reality of the individual characterized as an idea,

insight, intuition or theme; or a complex of such characterized as a belief system of a tradition.

3. The "jig" or medium with which the metaphor is formed. This will be the concrete linguistic or esthetic forms manifested through the individual for self expression or traditional representation.

4. The process by which metaphors are formed. This will be the synthesis created by an individual at whose base lies an inductive process which seeks to allay uncertainty by means of perceptual comparisons focused on a search for likeness or similarity.

It is assumed, of course, that the creator, the meaning, the medium and the process are all part of and interact with a highly structured, evolving objective reality whose physical manifestation is of a unitary and process nature (Whyte, 1948).

A detailed discussion of all of the above contexts would be too extensive for this paper. We will concentrate on number three, the mediums by means of which metaphorical processes are expressed, with appropriate reference to the processes of metaphor formation and the meanings to be expressed. The creator will be represented as aspects of the brain-mind are related to specific human reactions and formative processes.

Metaphor is clearly a multipurpose tool. We know who owns it. We know who fashions it for use. But what do we know of the jig or meta-tool humans have used to fashion this instrument? We know that the jig is the human mind and the meta-tool that does the fashioning is the process of imagining. An interesting effect of the fashioning of metaphor is that the jig in which it is molded and its tool, the imagination, are themselves altered in the course of creating metaphors. What this means is that the content-potential of our expectations for human imagination are expandable to the infinite (Arieti, 1976). Indeed, we need use little of our own imagination, but rather the historical written and pictorial records of man, to know that he can imagine anything! What will be significant for survival, however, will be what he can imagine and construct to keep the evils of fragmentation and disconnection from dissipating and destroying the positive values in civilization. The infinite capacities of human imagination must be curtailed. It must be focused on relating the positive values produced by the civilizing process to the healthy wholeness of individual humans who have in the modern era been subjected to a wanton misuse of technology.

Metaphor has played a large role in the rise of the misunderstanding of technology's utilization. It is not essentially imagination's failure, but man's failure to understand his own nature and the only direction in which to press his potential in order to prevent catastrophe.

What becomes important in defining his own nature accurately is to ascertain how he describes it. This is what the biological, psychological and social sciences are attempting; and, of course, the theological view of man has its perspective. All of these use language and art to do so. Science uses an empirical approach, experimentation and systematic thinking being at the heart of its efforts. Theologies have visions of man and they differ on the basis of experience and philosophies that have evolved from diverse cultures. Both science and theology have used many metaphors to characterize the nature of man, but only science admits to still being on the road to discovering aspects that as yet remain unknown.

What is the direction of science's use of language? As Dewey and Bentley would have it, it is always toward firmer and firmer naming (1949). This implies that man's systematic description of objective reality should become more and more accurate and complete as time goes on. Thomas Kuhn writes:

> ... The causal structures to which our language is accommodated exist quite independently of our conceptual schemes or theory construction. We do not decide by convention where the boundaries of natural kinds lie. Neither do we, in any important sense, "construct" the world when we adapt linguistic or theoretical frameworks. Instead *we* accommodate *our* language to the structure of a theory-independent world. (p. 408)

In discussing the role of imagination also from the scientific and humanistic viewpoint, Lancelot Whyte makes an even more precise statement about the role of language, or as he characterizes it, symbols:

> ... So we come to the role of the imagination in the development of the human species and its cultural tradition. The unique feature in man, as against all other organic species, is that man requires appropriate guiding symbols, in the form of ideas and convictions, in order to live a life in accordance with his potentialities. Moreover, the symbols which would permit a stable adapted life suited to human capacities have not yet been found, and if they ever are to be, this can only be achieved by developing existing symbols to correspond more closely to the objective structure of nature including man himself. Thus man cannot evade his unique fate: to have to search, perhaps endlessly, for the symbols appropriate to nature and to his own nature. And the creative imagination, expressing the formative character of natural process within the subtle structure or cortical protein, is the power which he must use, or better which uses him, in this extraordinary adventure. ... (1961, p. 372)

Thus the languages which man uses, whether they be verbal or visual, have a vector--a direction to pursue under the direction of mind, or as Whyte would have it, the creative imagination. It can begin to be seen now that metaphor can serve an important purpose as a *characterizer* in this search.

But what is Language's relation to metaphor in our consideration of metaphor as a tool? In our analogy Language is to be taken as the handle or base in which the tool is embedded. The handle of any tool is important to its effective use. A poorly designed handle, or a handle that is inadequate to the proper use of the tool limits the efficiency of the tool. Also, if the characteristics of the handle are misunderstood, the tool may be wielded awkwardly and even misused. So the understanding of the characteristic forms of verbal and non-verbal language become an important base on which to build education about how humans have come to communicate.

Both verbal and non-verbal languages carry the metaphor, use metaphor, and provide the material of its characteristic forms. These materials are provided by the mind which uses the perceptual processes to inform itself. In forming metaphors the creative imagination utilizes certain elements that the languages of abstraction have derived from within and without.

These languages of abstraction are of two kinds springing from the fundamental way the brain-mind processes information in its two hemispheres. The right hemisphere, sensory based, emphasizes esthetic abstracting, the registering of forms, qualities and the properties and relationships of the physical world and human experience. The left hemisphere, symbol based, emphasizes linguistic abstracting, registering the concepts, or their representation in words, that analytic perception has discriminated and identified. The salient elements which these languages provide are images and concepts. Herein lies the paradox underlying human communication. Though images are always concrete and perceivable, and so provide a direct form of communication, the concept can be represented in many ways. Nevertheless, its major form of representation in terms of linguistic abstracting is by means of the word--an abstract symbol, whose meaning is dependent upon context. Verbal language, therefore, is always context bound, experience bound; and thus as the handle in which the metaphorical tool is embedded can handicap the user who is not wary of the angle this handle foists upon a particular use of the tool. General semantics deals with this enormous problem.

Rummelhart (1979) suggests there is a hierarchy of "metaphoricity" which we might say moves from metonomy to myth. But language itself does not dictate the content of metaphor. Language expresses metaphor, provides the variety of concrete manifestations in forms (the tools) man has evolved for communication. The content is provided by individuals and traditions in terms of the meanings their experience has provided. These are the networks of concepts man has discovered to provide an understanding of the relationships he finds in objective reality including his own relationships to nature and his fellow beings. These concepts, of course, can be expressed via images and words because of the different mediums man has learned to use to express himself.

Human creative imagination, the holistic formative process underlying creativity (Whyte, 1961, Arieti, 1976), relates or synthesizes the characteristics of content--the meanings--by combinations of all their manifest forms. And though the combinations are infinite, they are achieved by processes of *ordering* and *integrating*, the net historical results being the development of *complexity* in all the forms of man's imaginative accomplishments (Arieti, 1976). Part of this complexity stems from the function of the *symbol* as the essential element in human communication.

Having determined that Languages are responsible for the structures of metaphor, though we have not looked at these structures yet, and characterized creative imagination as the formative process, we have to look closely at the elements imagination utilizes to ascertain their properites. These elements dictate the limits and character of the meanings they can express.

These elements, as we have seen, are the products of our "senses considered as perceptual systems" (Gibson, 1970). The elements imagination uses, images and concepts, lead us directly to the main function of metaphor as a multipurpose tool of communication. The main function of the metaphorical processes is to be *descriptive*. It manifests the primary purpose of language as a descriptive process (Schiller, 1980) and uses a major operative form evolved by our perceptual systems to acquire information: *comparisons* (Schiller, 1980). The ordering achieved in the human search for certainty is the discovering of *similarities*. The ultimate outcome of this became linguistic *generalizing* which created classes of words we call nouns, verbs, adjectives, etc. The integrating achieved is the unifying of perceptual saliencies at different levels and orders of experience. The complexities created are the diversity of meanings and the symbol systems man has comprehended and constructed as he interprets his experience.

The needs of human experience and human capacities fostered the evolution of a set of culturally evolving communication processes I have called the language hierarchy (Schiller, 1974). This hierarchy attempts to provide a unified description of man's interior and exterior communication processes on the basis of arranging the units of each system (concept, feeling, gesture, spoken word, written word) on a continuum ranging from least stable to most stable. In the evolution of this hierarchy the formative process submitting to as yet unknown coordinating conditions evolved by means of man's expressive capacities a "thing" to represent felt meanings, identities and unities observed (perceived) within and without. This "thing," no matter what the initiating stimulus among our sensory modalities, and no matter how varied the synthesized "products" of imagination, we call the *symbol*. Historically, the symbol may have been manifested within the cerebral cortex first as "Gods" whose voices dictated action (Jaynes, 1976), then as "art" on cave walls, as burial artifacts, as the spoken word and finally as the written word.

The differentiation of the symbol into graphic and verbal types is directly related to the dual nature of man's abstractive powers. They develop their characteristic forms because of the specific conditions of man's evolution perhaps the most important physical accomplishment being the forming of the human hand with its opposable thumb, which of course, was instrumental to the development of tools.

The close connection of the development of meanings with the growth of symbolization cannot be over-emphasized. In a fundamental way in early thinking (Paleologic thinking, Arieti, 1976) these were combined in an identity. In the evolution of thinking accompanying the extraordinary expansion of the cerebral cortex, linguistic abstracting became pronounced, which separated the word symbol from its contexts, creating new systems with their own characteristic forms. These provided man with new instrumentalities that facilitated expanded thinking. But the symbols, particularly linguistic ones, could not retain their usefulness outside of the contexts that created them--the brain-mind in contact with other brain-minds. Alphabets, words, sentences, or any message expressed with spoken or written symbols has no intrinsic meaning without an interpreter. So any symbol is always an embedded entity whose meanings spring from a surround of systems which have made it salient.

We can locate the development of symbolization on an axis of abstraction (Schiller, 1980). This axis pictures a disjunctive continuum representing the two major forms of abstracting. Both the linguistic and esthetic abstractive processes are related on this axis, the former deriving from the latter, at least in its written form. Two principles are suggested that governed the growth. Linguistic abstracting was a form of selection in which when a particular meaning was expressed all other detail became ignored. Thus in the development of language a chosen label came to restrict perception in that what came to be socially identified by means of a representation (symbol) was a raised awareness of an IT, giving this IT a perceptual saliency to the exclusion of all other stimuli. The value of pinpointing such an IT permitted two processes to take place that created the organic foundations of culture to be laid down. First, the representation of something could exist in the absence of the IT itself. This permitted thinking about IT ... connections could be made utilizing the context which helped make IT salient. This could lead to personal problem solving and creativity. Second, agreement about the IT named among peers made possible cooperative effort, which no doubt made the early hunting societies successful.

Esthetic abstracting was even a more basic form being a direct response to experience. Linguistic abstracting took time. Esthetic-abstracting was almost instantaneous. The sensory systems provided a continuous flow of information, some of which had to be reacted to instantly to preserve life. It was a selection process in which identifying what was intrinsic in the experience was crucial. Esthetic abstracting brought a mental focus on larger contexts. It fostered a process orientation that led ultimately to the development of language because of the repetition in nature of cyclical events whose similarities became salient as well as the repetition in personal experience of natural events and events that could be planned and organized to happen again. This was a long and no doubt painful process. Think of the 200,000 years it took merely to develop stone tools.

First esthetic abstracting and then linguistic abstracting provided the creative imagination with the two elemental forms it used to represent symbolic meanings. And the major means man's characteristic forms of Language use to synthesize these elements are the metaphorical processes.

These two forms of abstracting are not a dualism of separate functions. Rather, they represent a duality within the unitary-process functioning of the creative imagination. Together within the language hierarchy they have facilitated the ordering processes of perception and belief by means of which uncertainty is dissipated in the search for familiarity in similarity.

Specifically, they have produced the elements "manipulated" by human imagination: the image and the word. These elemental forms provide meanings by means of perceivable structured entities that are used in contexts or environments which mold these meanings. They are the elements of the languages man has evolved and they are utilized to describe the information, feelings and beliefs man garners and generates in his subjective and objective worlds.

This descriptive process developed by man exhibits two tendencies that either facilitate or distort communication. The major facilitating tendency in verbal language is its enormous economy in the recording and transfer of information by means of words. This economy is not achieved because of the structure of the word, itself, but because of its function and position in the larger process of thinking, whose essential elements include concepts and images. The word as connector (its symbolic function) provides an operational representation (rather than a permanent one) of a concept whose specific meaning is dependent upon a hierarchy of contexts in which it is used. The word can represent a large concept like "universe" or a small concept like "millimeter." The word as a linguistic symbol can never incorporate itself the completeness or any of the relationships of the IT it stands for. This completeness exists in the totality of contexts which give IT its specific or "situational" meaning--its Being (Richards, 1968).

A limited kind of "completeness" can also exist subjectively in the knower, though it can never be as full as the IT in situ. In the knower, or perceiver, there is a completeness of personal knowledge that can result in an accurate perception of reality. Elsewhere, I have called this contextual perception (Schiller, 1969). Achieving contextual perception is a direction in learning and a goal for education.

But a "word" as the fundamental element in spoken and written language is not truly representational. A word is the truly abstract symbol in that it "stands for," is a substitute for, something to which it has no other connection than its linguistic role of naming or identifying. It is a concrete arbitrary convention that becomes a systematic element in the language hierarchy to serve just this function.

Not being truly representational is what distinguishes it from the unit of esthetic abstracting, the "image." Most images truly represent. Images are essentially *isomorphic* to the reality they are used to denote. Nothing could be more dramatic than to compare the English word for "man" to the Chinese word "人". The image usually incorporates a salient aspect of what it represents and so brings a visual context with it into the mind. This is intrinsic to its nature. No linguistic abstraction does this. The word must have contexts brought to it, or it will be incomprehensible. The image--an experience of fact--can never be contextless (except in abstract art!). What makes images valid carriers of meaning and information is their intrinsic representational nature. Though the image is still an abstraction, it has less the nature of a totally abstract symbol because it is not completely detached from the reality it depicts: it always retains an intrinsicness to the IT it portrays, unless distorted naturally or deliberately.

This difference in the quality of symbolization is represented on the axis of abstraction by a disjunction which I have called the plane of detachment/attachment (Schiller, 1980). Here are diagrammed the developmental relationship between the growth of the verbal descriptions of linguistic abstracting, which reject perceptual detail, and the iconic descriptions of esthetic abstracting, which picture intrinsic detail. It is this difference in the kinds of symbolization that created what today we talk of as verbal literacy and visual literacy.

The use of powerful visual imagery in human experience became incorporated into the verbal mode of "languaging" (Postman & Weingartner, 1969) as an important form of *reference* (Boyd, 1979). Otherwise language would have floated in a sea of abstractness leading to extinction. Because of the intensive development of visual memories, interconnected dynamic sequences of related experiences grew as *multisensory* images--for every significant image in human memory is accompanied by either a *feeling* and/or a *meaning*, whether recognized or not, as Ahkter Ahsen (1973) has shown. These records were put to good purpose by the creative imagination, particularly when dealing with specific situations that were *vivid* (caught attention and became salient), that created integrations, and that *compacted* elements into a new entity (figure, concept or behavior), or when familiarity caused by recognition emotionally sparked the use of a label or picture to crystallize into spoken language or art the name or representation of a now registerable fact.

The spoken word (a socially agreed upon name) would pinpoint this "fact"--ignoring all other aspects or characteristics by packing them into its *contexts*, which only experience with them could provide. The written word initially was used to pinpoint a salient fact by picturing its intrinsic nature, as the earliest writing shows us. The economizing process, an essential tendency of the integrating function of imagination, proceeded ultimately to create the truly abstract symbol--the "letter'--perfecting its characteristic alphabetic form when the Greeks devised letter symbols for the heretofore less phonetically vivid vowels.

Early in the development of human linguistic capacity, the major potential for distortion inherent in a purely symbolic abstraction such as the spoken and written word--reification--began to function as one of the characteristic forms stimulated by psychological reasons important to early Homo sapiens, who contended with a reality that could comfort at times with expected regularities of experience, but perhaps more often was threatening and filled with awesome unknowns. Early imagination had only imagery and feelings to deal with. Later came the slow development of anthropomorphic needs and purposes which would spawn conceptualizations of concrete relations and hierarchal relationships--ideas/concepts. One early relationship observed by the wiser (more perceptive) group members most certainly would have been of causes and effects, in both nature and in human actions.

Such insights would have been provoked by a kind of perceptual logic (early visual literacy!) of contiguity, connection, similarity or even contrast. Any one of these perceivable conditions would be fundamental salient percepts having as aspects of its rising to attention an imaginal or conceptual vividness, or an imaginal or conceptual synthesis. Thus, at the very beginnings of human thinking the needs and processes for metaphor existed.

The metaphorical processes have evolved as a variety of cutting edges fashioned by the imagination and set into the symbol wielding handles of Language and Art. The working edges of these tools perform specific functions for perceiving, thinking and expression. They provide the perceptual and linguistic basis for the development of contextual perception via principles of perceptual saliency. The functions of metaphor are said by Ortony (1975) to be to make vivid, to make compact, and to express the inexpressible. If the key role of human communicating can be seen as that of transforming information so that it can be transferred most effectively among individuals and through time, then these three factors suggested by Ortony can be taken as principles of information transformation. As operational tendencies that have become systematic in Language and Art, they have provided vectors for learning and been instrumental in creating knowledge by transforming salient perceptions into meaningful expressions. These are physiologically based processes that generated usable information by degrees for Homo sapiens.

The very nature of the symbol was originated by a formative process (imagination) manipulating free representations: things-that-stand-for experienced visual situations, feelings and concepts. Thus, metaphorical processes are at the center of our discovering, learning, thinking and the achievement of wisdom. The wise individuals, who through the millenia of human experience recognized patterns, cycles, and merely pinpointed things that were similar or alike, gave birth to the might of metaphor.

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PANEL FILM DISCUSSION

by

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My second assignment at the IVLA conference was as a panelist discussing the film "Killing Me Softly." The film was made from a slide show by Jean Kilbourne and dealt with the supposed anti-feminist and anti-humanist bias of mass advertising. The presentation was, in my opinion, artful and witty, but flawed by two assumptions. Both premises were offered (and accepted by the IVLA audience) without proof, and no evidence was advanced in the film to support either contention.

1. "Advertising is a powerful socializing force in our society." I believe that advertising can ride on trends and capitalize on momentary fashions or deep seated anxieties to sell products, but it is not a powerful socializing force in its own right. Advertising is a mirror (a fun-house mirror, if you will) that reflects the hopes and fears of our culture. And it does so for one reason--money. If advertising were as powerful as the film claimed, no product would ever fail, no heresy would ever triumph, and no tyrant would ever fall.

2. "Advertising is anti-feminist ... anti-human." In fact, advertising is not against anything; and the only thing it is in favor of is the client's product. There is an old saying in the ad game, "If you want to send a message, call Western Union." Advertisers are profoundly uninterested in social causes like the ERA, except to the extent that these causes can be used to sell products.

The opening comment in the discussion of the film was that "advertising is obscene." There was no disagreement, and subsequent comments

EDITORS' NOTE:

Dr. Richard Lee Smith, head writer at KET, Kentucky Education Television, participated in two presentations. The first was a workshop session titled, "Writing Visually." The program listed the session as one which would provide "Tips on writing visually from a professional advertising and television writer." It was not the kind of presentation that lends inself to a formal paper. After the session Dr. Smith described what had taken place in one sentence: "I showed a tape, told stories of the ad biz, and answered questions." For Dr. Smith's second contribution we are more fortunate, however. He has provided post-session comments which present his view of a panel discussion--one of the more lively sessions at the 1981 conference.

suggested that ad men are willfully wicked in attacking positions like feminism that they know in their black hearts to be ULTIMATELY RIGHT.

But this is not so. Advertising men are no better and no worse than anyone else. They function like lawyers, advancing the case of their clients before the bar of public opinion. If advertising is wrong, ethically, so is our free enterprise system and the profit motive.

Now there *are* some legitimate criticisms that can be made of advertising, but it is not enough to say that advertising is wicked or tasteless or socially *un*conscious, because it disagrees with me. That is naive, and worse: it is beside the point.

I would suggest that students and teachers of visual literacy consider:

1. What effect that TV ads had on the minds of our people, especially the young. Never mind the value judgements. Find out what the effect is first, and then decide.

2. How do ads work; how can they be made to work better. There is money in this one.

3. How can people be taught to react to ads intelligently.

The important thing to remember is that, as the film makes clear, ads are an inescapable part of our life. There is not much use just wringing our hands. We must learn to cope intelligently with advertising, accepting what is good (and there is much good) and rejecting what is bad--and there is much bad.

THE READING OF PICTURES: A CONSIDERATION FOR DEVELOPING A CRITICAL MODEL

by
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Making a photograph, making a film or a videotape, is in a very basic manner another method for making pictures. My interest within this paper is to address a number of the issues that surround the process of making pictures and our discussion of them. My context will be the media classroom, but it may as well be a museum, a textbook, the city streets or the privacy of the home. In these situations we encounter and confront the photographic image in the form of art, text illustration, billboard advertisement, family album and television.

I am now going to display a number of slides to demonstrate what I call the "index" to the problem. The images you will be seeing were created by high school students who attended the New York State Summer School in the Arts, School of Film and Media, held in Buffalo in 1980 and 1981.

With this work acting as an index, the problem that they refer to and present to the media instructor is precisely this: "Through what methods can the imagemaking process be better understood as a message carrying system?" and "By what strategies can media educators create a meaningful dialog between their students concerning that process?"

In the consideration of the photographic image--film, still, or video--attention must be given to the event which surrounds the production of the image. Like any event, the photographic event is sequential and syntagmatic, with each element building upon the preceding one, terminating not with the image, but with the very first step of that process--the decision to make another picture. In this sense, the image making process is eliptical.

The first step, selecting camera and other photographic paraphernalia, contains a number of elements that at first may appear to be simple, too basic and arbitrary. I suggest that the opposite is true. These first steps of the decision making process are critical to determining what is to follow. Decisions on camera format, lens and film, determine the basic terms of how one will photograph and what one may photograph. An investigation into these first considerations of the decision making process reveals the following characteristics:

1. What will be photographed: landscapes, people, forms and patterns, water, clouds and monumental events.
2. A decision on the time to photograph and where to photograph.

3. The technological format to be incorporated: camera, film, lens, and other photographic baggage.

4. What mental construct will be incorporated to determine what the picture looks like.

These can be said to be the initial steps or decisions in the production of any photographic image, be it still or moving, representational or abstract, documentary or fiction.

Once out in the field or in the studio other considerations come into play. The photographer acts upon his world, not seeing it as it is, but as a series of possible photographs. The continuous production of internal imagery is not based upon a one-to-one correlation to the outside world, but rather upon some notion as to what a photograph "looks like." This consideration as to what a photograph "looks like" dictates the next series of considerations.

Upon discovering something that has picture possibilities (figure 1) a range of possibilities must be attended to:

1. distance from which to photograph
2. angle of view
3. length of exposure
4. lighting desired
5. area of focus
6. choice of lens characteristics

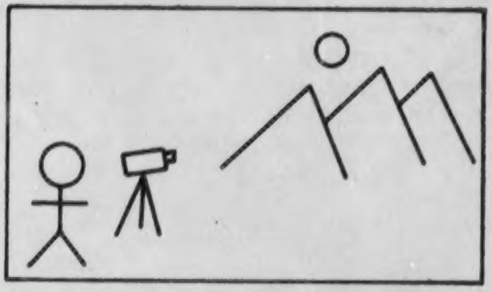

Figure 1. Discovering Something with Picture Possibilities.

After the above decisions have been made the correct moment of exposure is anticipated. There is not, as Cartier-Bresson would lead us to believe, a point in time called the "decisive moment" when all elements come together, which the photographer recognizes and records, making a significant photograph. Rather, and I believe this to be a critical distinction, there exists not a "decisive moment" but a "moment of decision"; a point in time when the camera operator becomes the producer of an image. It is the moment when a decision is made to make an image, a "YES-NO" situation. It occurs at a point in time when an internal image feels right with an internalization of an external image.

At this phase of the image-making process the producer is concerned with the similarity and dissimilarity between his internal image and the lens perceived image (figure 2). To what degree does the external image fulfill some inner needs? Once this issue is decided, and the exposure is made, the next sequence of decisions and questions are confronted. Attention and questions are now directed towards the external photograph

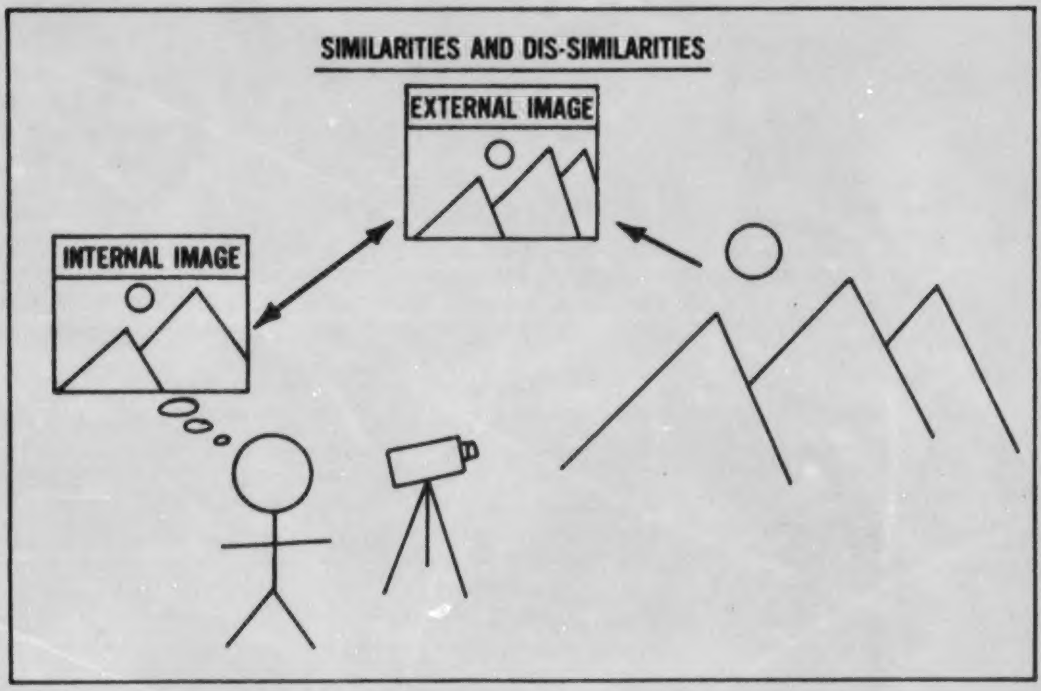

Figure 2. Comparing Internal and External Images.

and the internally perceived image. To what degree does the image produced relate to the intentions of the imagemaker? And if consequential: What is the correlation between the photograph and the object pictured?

At this point within the process, the imagemaker has made a number of decisions which have determined what the photograph will look like. They range from decisions to make a photograph, to an expectant external relationship, to an internally created image. It should be evident at this point that the production of a photograph, or for that matter, the production of any picture, is a result of a series of decisions--decisions that are not neutral but are manifestations of an intent. Decision suggests choice, and intent is synonomous with purpose; a decision with a purpose is an expression of an intelligence. With that being the case, the art of making photographs can be better understood as an intelligence expressing itself through a medium.[1]

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[1] A number of my initial ideas on photographic decision making as a paradigm for further considerations on the imagemaking process came from a discussion with Nathan Lyons at the Visual Studies workshop in Rochester, New York, 1976.

Moving further away from the initial decision to make a picture and the actual production of the picture, I now turn to the issue of criticism or the reading of pictures. It is at this point that the producer and the viewer become that entity called the audience. The significance of the photograph as an object will not be discussed here. What will be considered is the relationship between the viewer and what may be occurring internally as he experiences the photograph. I will then present a model that I have used in teaching media classes to discuss that internal experience.

Upon viewing an image the looker creates an internal equivalent to that image. This is more complicated than a direct retinal response creating an internalized image, for a number of factors come into play: first, selectivity; second, sorting and constructing; and third, the assigning of meaning to the image. These factors are better understood when demonstrated through a viewer, when he looks at an abstract image. First, he passes through a period of scanning and gathering information. He then begins to organize, find relationships and form associations. And lastly, if the re-created image falls within a mental construct and framework of experience, the viewer can assign meaning to what is being perceived, with it then becoming a reference point for future experiences. Of course, the act of perception and the assigning of meaning to what is perceived goes further than that, but to fit my purpose here, this model will do:

CULTURAL KNOWLEDGE
(SHARED KNOWLEDGE)

STRUCTURE + CONTENT + CONTEXT = MEANING

Meaning is by no means arbitrary. Culture has provided us with a semantic system by which we can share a common meaning, understand the events that happen before us, and act accordingly within a context or situation. By and of itself an object, image or event has no meaning. Its meaning is contextual and situational. A mark found on a rock in the foothills of Nevada may hold no significance for you, but for a native of the land it may contain a warning of the highest order. Objects like baseballs, refrigerators and ice cubes derive their meaning from what anthropologists call "cultural knowledge." Photographs, films, videotapes, drawings and paintings are no different. Their meanings are grounded in the culture in which they appear and are found.

The photograph perceived as a single image or as part of a sequence of images holds no inherent meaning. Any meaning that a photograph appears to hold has been assigned to it by the viewer. It is the situation that has been provided for by the producer of the image and not the interpretation of it. An example may shed some light on this point. Imagine an SX-70 color photograph of a wooded area, with spruce trees as the dominant form within the frame. Without a context provided, the image would elicit a range of interpretations. What if I was to inform you that the photograph was by Paul Strand? How, within this new context does the image acquire meaning? Does the image acquire an aesthetic, economic or historical value? What if I told you that the photograph was of a mass grave site of slain black youths missing from Atlanta? What would be the meaning of the photograph within that context? Now, what if upon viewing the photograph I informed you that it was a real estate photograph of prime hillside land for sale. The same photograph assigned to three different situations has taken on three different interpretations. It was the context that was changed and the passage that accompanied it; the photograph remained the same.[2]

There are a number of viewer characteristics. These can be viewed as the contexts that are brought to the image by the viewer in his attempts to clarify the meaning of what he is seeing. Some are:

- Relationship to image
- Cultural values
- Reference points
- History of looking and thinking about pictures
- Age
- Level of reasoning

Keep in mind that it is the situation that is provided for by the producer and the arena in which it is displayed which allows the viewer to act upon the picture. Once acted upon, the image itself becomes a reference point for future interpretations of the same or other images.

At this point (figure 3) a number of interactions may occur: the viewer and the producer may exchange dialog or the viewer may carry on a dialog with other viewers. In this situation a reviewer or critic may describe or interpret to an audience that may never see the work in question. In the case of the producer-viewer dialog, the producer is given the opportunity to know how his image has been perceived and if his intended meaning was also perceived. The same holds true for the viewer. It is a time to verify one's hypothesis on significance. In all cases, the result of such a dialog will in some way affect the future production of pictures by the producer and future interpretations by the viewer.

The model of communication by Sol Worth, from his essay entitled "Man is Not a Bird", (1976) provides us with a clear model for this interaction. It is the case of an action that is implied to have a meaning

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[2] A more elaborate discussion on this notion was presented by John Brumfield in his essay entitled "A Good Milk Cow" in CAMERA LUCIDA, Number 3, 1981.

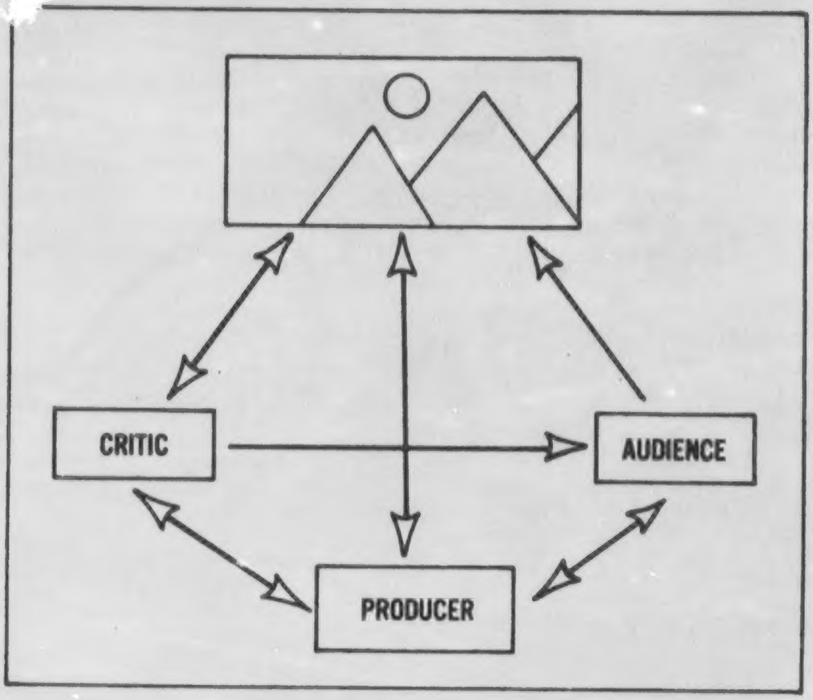

Figure 3. Interactions.

that is inferred by the receiver of the action. Put another way, a producer acts upon something with implied meaning or intent. This action is viewed or received by an audience that will infer a meaning to what is being received. Between the two is interference that filters out or changes the message in some way, affecting its meaning which is inferred by the audience. This filtration process may be executed by the medium of expression, the context of the gesture or the ability of the audience to decode the message.

The meaning then, of any photographic image is determined by the relationship of its structure, content, and context within a larger construct shaped and formed by the producer and his audience. What does all of this mean to the pedagogy of media and to the reading of images? Once students grasp the concept that the images they make and see are the result of an intelligent act, and a gesture of intent, they will look to the image not for what it is, but for what it becomes. They will have to confront the question: "How do I respond to that image?"

To articulate a response encompasses a number of translations. On the first level, the image must be assigned a meaning or a construct for understandings by the viewer. Secondly, a visual response must be changed to a verbal code, one that can be expressed either by the written or spoken word. Then, to speak of a picture, a response must be encoded into a different form containing hierarchies and decisions on meaning. While this transition of picture response to word response is occurring, the translator is continually referring back to his internal image. What must be considered in this translation procedure is the selection process in creating the internal image which includes the encoding and re-coding of experience. The problem is one of translation and clarification within a selected paradigm. The paradigm in this situation includes the areas of art, journalism, personal history, and information recording.

The distance traveled thus far has, if anything, suggested one notion about the process of making photographs and their interpretation. That process is an accumulation of selections and decisions which terminate in an expressed or unexpressed intentional act made by the participant, being either the imagemaker or the active viewer, keeping in mind that an intentional act has intended outcomes which imply a message. The issue faced by media educators, or those with similar concerns, is how to help ourselves and our students to realize that any image produced (or programmed, as in computer or satellite produced images) for a purpose is the act of an intelligence. And within the same vein, the problem is how to initiate a dialog on images that is not judgmental and unproductive to the creative process. This is not an easy task considering the egos involved, the interactive dynamics of students and instructors, and the purpose behind the teaching of media within a selected context.

As discussed earlier, the viewer who wishes to respond to a photographic image in a verbal form faces the problem of translation from one mode of semiotic display to another. Place this activity into a classroom environment and a number of variables begin to act upon the process. The student or instructor must contend with peer pressure, authority figures, self-image, and personal investment. The problem as I see it is how to create an atmosphere that is non-judgmental and supportive of productive dialog.

A model that I have incorporated within my own teaching strategy over the last five years was first introduced to me at a workshop led by Doug Stewart at the Society for Photographic Education Conference in 1976. The theory presented was simple and to the point. By removing all judgmental devices from the imagemaking process and the discussion which followed, the student and the instructor were freed from convention and existing paradigms of photographic discourse. The student was encouraged to respond, pictorially, kineticly, and verbally without the risk of failure. What, as I experienced later, was most critical for me as an instructor, was recognizing the level of the student's insight into the image and to question his responses by calling for clarification. Through this strategy I aim to provide a supportive base for higher levels of reasoning.

The model (figure 4) provides for four considerations: judgmental acts; perceptual and visual elements (what visually can be seen and identified); affective responses; and political or social context. During the first presentation of the model the judgmental category is eliminated on the grounds that it does not clarify the student's response to the work. Judgmental statements, good or bad, do not reveal the rationale for making such statements. They do reveal the status of the work in some undefined

JUDGMENTAL	PERCEPTUAL (VISUAL)	AFFECTIVE (FEELING)	POLITICAL (CONTEXT)
GOOD	TONE	COLD	SEXIST
BAD	COLORS	FEARFUL	MIDDLE CLASS
WEAK	GRAIN	LONELY	STYLE
NIFTY	FOCUS	SAFE	RADICAL
STRONG	DISTORTION	STRONG	CONSERVATIVE
BORING	PATTERN	SECURE	HISTORY
EXCELLENT	FORM	HAPPY	CONTEMPORARY
IT WORKS	ANGLE	SAD	
FAR OUT	DISTANCE	ANGRY	
HEAVY	DARKNESS	WARM	

Figure 4. Image Clarification Considerations (after model by Stewart).

hierarchy of a photographic paradigm. Once it has been established that there are photographs, the student can then move on to the next three categories. Under the heading of perceptual or visual elements the student will list all of the visual elements of the image (i.e., tonal quality, strain, movement, line, pattern, etc.). By doing this he becomes aware of the formal and technical visual codes used by the imagemaker in the creation of the image. Under the affective column the student will list any affective responses he may have to the image (i.e., it makes me feel cold, I feel alone, etc.). It is here that the individualistic subjective interpretations are first exposed. The student in clarifying this emotional response will draw from the visual/technical column to discuss what in the image aroused his response in that manner. Th final column, which I call political, encompasses all other non-neutral elements of the picture. These include issues of historical placement, sender, economic, racial, current movements and other situational issues. In this column the students see the image within a cultural/social/economic paradigm. What is critical to recognize about this model is that in a non-judgmental, risk free manner, the student is encouraged to analyze his response or provide the framework for a meaningful engagement with the image to better understand what his relationship is to the work.

The student's relationship to the photograph is complicated when considering the image as part of a body of work, being either a categorical structure or a sequential development (figure 5). Meaning in this situation is derived from a context created by the work itself. The student must then see the body work as a statement within itself and within a larger situation. In this situation of a categorically or sequentially developed body of work the message itself is the work, and not any individual photograph.

Conclusion

In the teaching of the reading of photographic images, there appear a number of issues. The first is an understanding of the imagemaking process

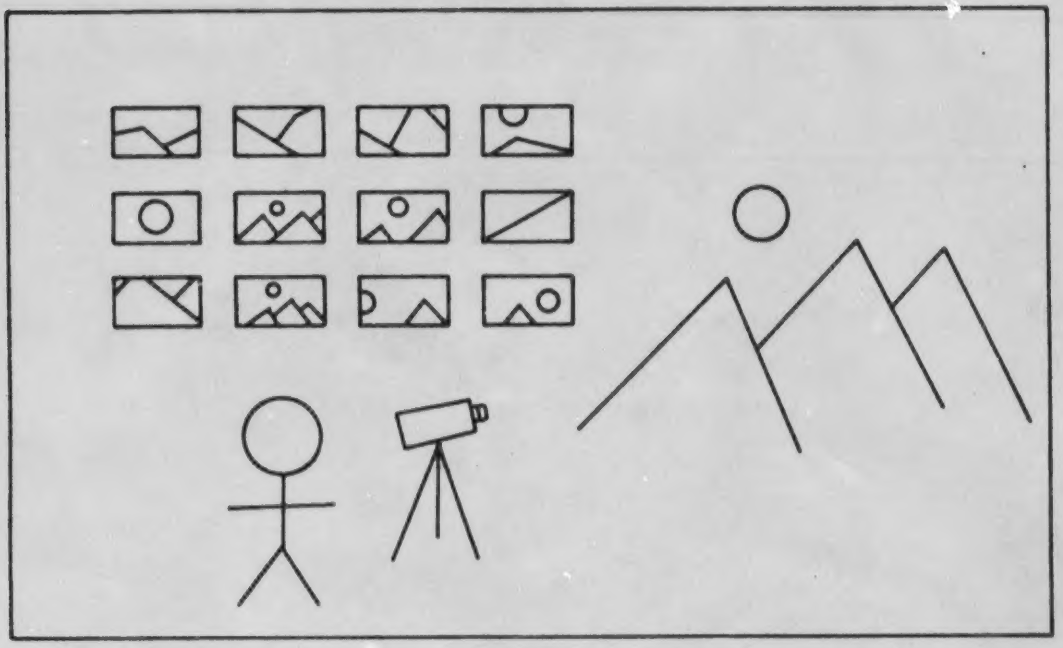

Figure 5. Student's Relationship to the Photograph as Part of a Body of Work

as an act created by an intelligence--an act which is based upon a large number of decisions. Second, that while the viewer's role in looking at images may at times appear to be passive and only slightly involving the process itself, it is complex and problematic. For the viewer who is requested to respond outwardly, the problem-process becomes one of translation and syntax. And lastly, the work itself has to be seen as part of a larger message-making system that situationally exists within the parameters set by culture and time.

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VISUAL ADUCATION

by

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Advertising has been defined as "the action of attracting public attention to a product or business." I would like to attract public attention to ads as a means to visual literacy--to visual aducation.

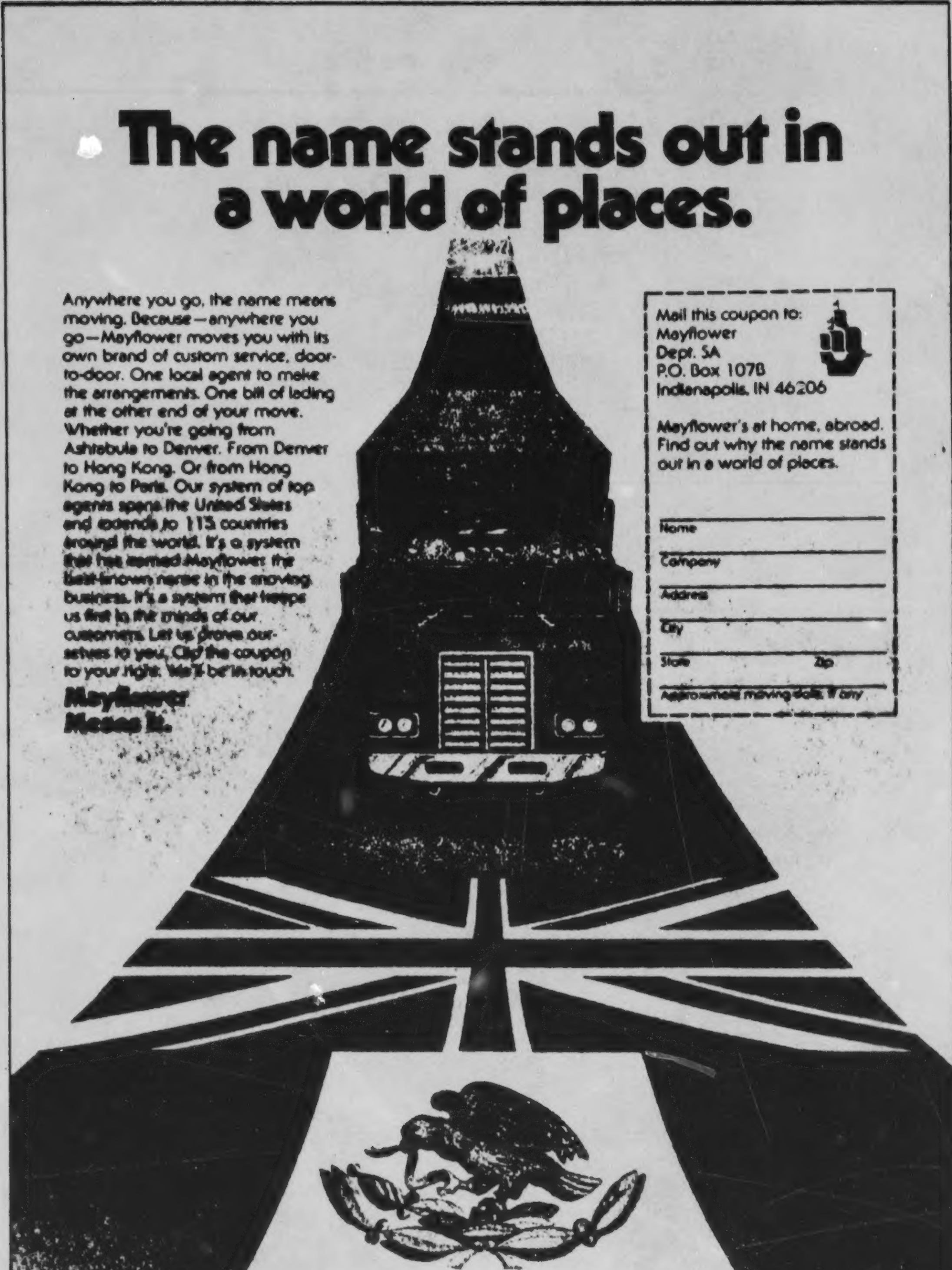
Ads, whether we like them or not, are a major part of our man made environment. Ads, whether we attend to them or not, influence our perception of ourselves and others and, therefore, our behavior. Ads slip into our homes via mass media--newspapers, magazines, television, radio, and the US Mail (junk and otherwise). Outside our homes they confront us on public vehicles (buses, trains, taxi cabs, airplanes), store fronts, and along the roadways and rooftops as billboards. We are surrounded and bombarded by advertising constantly.

The primary purpose of an ad is to sell some product. It does this by utilizing every conceivable method of fostering desire, lust, greed, envy, guilt, humor. Ads entertain, confuse, amuse, deceive, instruct and destruct. Many ads are occult in that their message is concealed. By massaging an ad we can arrive at its real intent--the hidden message--the subliminal--the "latent content," in Freud's words.

Last summer I gave a paper on picture perception at a conference on Phototherapy at Kent State. One of the participants, a high school teacher, asked me how one might go about teaching picture analysis. I have given this considerable thought and I would like to show and suggest how one might go about teaching how to critically read advertisements and, therefore, pictures. I have structured this in seven phases, since seven is a magic number and advertising, at its best, possesses a kind of magic.

I Gestalt

The first phase might be called the Gestalt phase in which one looks at the entire ad or picture and makes a judgement on its merits. To assess and record one's judgement we could use a semantic differential questionnaire (see Appendix). Specially selected bipolar adjectives can be used to assess emotional quality, design and aesthetic quality, and so on. One can look at the Mayflower ad in Figure 1, for example, and rate it in terms of pleasant/unpleasant; vibrant/still, and so on. The "profile" that is generated reveals a person's reaction to the ad and this might be compared to the average of a group distribution. The differences that are found can provide interesting discussion and insights.


The name stands out in a world of places.

Anywhere you go, the name means moving. Because—anywhere you go—Mayflower moves you with its own brand of custom service, door-to-door. One local agent to make the arrangements. One bill of lading at the other end of your move. Whether you're going from Ashtabula to Denver. From Denver to Hong Kong. Or from Hong Kong to Paris. Our system of top agents spans the United States and extends to 113 countries around the world. It's a system that has earned Mayflower the best-known name in the moving business. It's a system that keeps us first in the minds of our customers. Let us prove ourselves to you. Clip the coupon to your right. We'll be in touch.

Mayflower Moves It.

Mail this coupon to:
Mayflower
Dept. SA
P.O. Box 107B
Indianapolis, IN 46206

Mayflower's at home, abroad. Find out why the name stands out in a world of places.

Name

Company

Address

City

State Zip

Approximate moving date, if any

Figure 1. Mayflower Advertisement.

II Visual

Phase two is the visual search stage in which we identify all of the picture elements in the ad (pixels in computer jargon). The original Mayflower ad is in color revealing the flags of Great Britain and Mexico in the foreground. Midway into the ad is a frontal view of a Mayflower truck in strong perspective. One notices an eagle in the very front of the ad also. More can be seen and identified but what has been identified is sufficient as an example.

Ads as we all recognize, are composed of word elements (called copy) as well as picture elements. Both work together in a gestalt intended to help sell a product. We will not emphasize the word elements for the time being, however, since reading words is such a familiar experience for all of us. Our whole educational system is based on our ability to read--to read only words, not pictures. In the late 1800's Rudyard Kipling wrote, "There aren't 1200 people in the world who understand pictures. The others pretend and don't care." One might add that most school systems apparently don't care either. We will concentrate, therefore, on pictures.

III Grouping of Picture Elements

Our next phase is the grouping, or 'chunking', of pictorial elements. The gestalt laws of perceptual organization are helpful here. They are direct and simple to grasp. Pictorial elements are grouped according to their proximity to each other; their similarity; their orientation in terms of continuity; and their ability to be brought together into a meaningful and familiar closure. Proximity, similarity, continuation and closure are the four major gestalt laws governing grouping. A simple definition of these four laws reveals their practicality:

Proximity: the closer two or more visual elements are located in space or time, the higher the probability that they will be grouped.

Similarity: things which are alike in shape, form, texture, color, position, orientation or meaning will tend to be grouped.

Continuity: It is easier than not for the eyes to follow a continuous line or contour.

Closure: Humans have a strong tendency to want to complete open forms and give meaning. Forming a visual closure participation and a psychological equilibrium, not unlike the biological equilibrium, that we call homeostatsis.

In the Mayflower ad the close proximity of the receding flags and the similarity of contour and receding shapes provides for continuation of the curved contours upwards.

With all the pictorial elements grouped, closure is formed. What emerges as figure, and as a gestalt, is the familiar and famous Eiffel Tower. This ties in well with the verbal component "the name stands out in a world of places." Picture and words tell the story.

IV Ambiguity

Phase 4, in dealing with ads, has to do with built in ambiguities which confuse and amuse. The ambiguities may take many forms. They could be simple word play, double entendres, paradoxes, oxymorons. The Mayflower ad has a few playful ambiguities. What for example are the British flag and Mexican flag doing as parts of the Eiffel Tower--a symbol of France? Any double entendres? Yes. On the left hand side in bold letters are the words "Mayflower means it." Means what?? Another possible ambiguity is the eagle on the Mexican flag which looks very much like our American eagle.

V Symbols

Next I would like to attend to the use of symbols in ads. Symbols can take many forms and have many meanings. The usefulness of a symbol lies in its multiple meanings. It allows for all kinds of projections and identification. Symbols are a form of broadcasting--they can reach mass audiences and, of course, that is why they are used so profusely in ads, painting, movies, and literature.

Several powerful symbols reveal themselves in the Mayflower ad. We have already mentioned the Eiffel Tower, the British flag, the Mexican flag and the eagle. All represent strength and pride. In addition, the word "Mayflower" itself calls to mind the courage, strength and daring of our early settlers.

VI Themes

Phase 6 in our visual aducation structure is the careful observation of an ad and a search for its theme. A famous New York advertising person once made an exaggerated but meaningful statement that there are only two themes with which ads deal: "sex and scare." I find this to be true with most products dealing with such "pleasures" as smoking, drinking, eating, cosmetics, fashions and the like. Ads such as this Mayflower ad and corporate ads such as those for IBM, Xerox, Kodak, and Exxon use themes other than sex and scare; quality, pride and a social awareness are often emphasized. The theme for the Mayflower ad seems to be that of internationalism, world travel, multinational connections, and world identification.

VII Synthesis

The last phase in our structured search is synthesis, in which we try to bring together the picture elements and the word elements; the overt information and the covert information; figure and ground; theme; symbols; ambiguities, and so on. Here we search for the real thing--

the meaning or meanings of an ad--the real message--the hidden message, or in the words of Dr. Neil Postman, "the parable."

After putting it all together this ad is saying, in an attractive and somewhat subtle way, that Mayflower will deliver the goods in at least three major countries and possibly many others. Trust Mayflower! The ad does this well and provides a visual mnemonic to help us remember the message.

The seven stages for studying ads can be collapsed into three:

1. Analyzing
2. Dramatizing
3. Synthesizing

Analyzing is the cognitive phase or the left brain component, but not exclusively.

Dramatizing or the affective/emotional phase relies heavily on the right brain.

Synthesizing involves both hemispheres.

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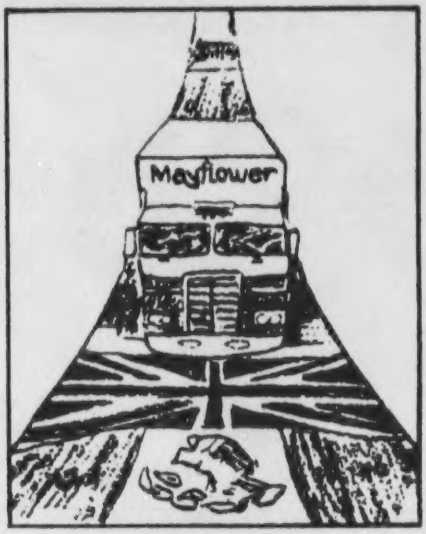
Appendix A: An Example of the Semantic Differential

Semantic Differential

Look at the Mayflower ad and use the scales below to indicate what it means to you. Place an X in the middle of the scale for a neutral response or towards one of the adjectives to indicate how closely the ad is related. An X adjacent to the adjective indicates a very close relationship.



pleasant ____: ____: ____: ____: ____: ____: ____: unpleasant

vibrant ____: ____: ____: ____: ____: ____: ____: still

repetitive ____: ____: ____: ____: ____: ____: ____: varied

happy ____: ____: ____: ____: ____: ____: ____: sad

chaotic ____: ____: ____: ____: ____: ____: ____: ordered

smooth ____: ____: ____: ____: ____: ____: ____: rough

superficial ____: ____: ____: ____: ____: ____: ____: profound

passive ____: ____: ____: ____: ____: ____: ____: active

simple ____: ____: ____: ____: ____: ____: ____: complex

relaxed ____: ____: ____: ____: ____: ____: ____: tense

obvious ____: ____: ____: ____: ____: ____: ____: subtle

serious ____: ____: ____: ____: ____: ____: ____: humorous

violent ____: ____: ____: ____: ____: ____: ____: gentle

static ____: ____: ____: ____: ____: ____: ____: dynamic

emotional ____: ____: ____: ____: ____: ____: ____: rational

bad ____: ____: ____: ____: ____: ____: ____: good

IDENTIFYING THE THEORETICAL FOUNDATIONS OF VISUAL LITERACY

by

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Introduction

The underlying purpose of this presentation is to review the historical roots of visual literacy and to provide a suggested direction for theoretical activity in the promotion of visual literacy. To achieve that purpose it will be necessary to confront systematically the questions, problems, and uncertainties which have heretofore impeded attempts to identify the theoretical foundations of the field. Because the issues are complex, the subject is considered analytically, following an approach that has five components. The approach is linear in that it progresses from a review of the past through current concerns to suggestions for the future.

The first step is a review of historical thinking about visual literacy. This is more than a search for the "Roots" of a movement. It is a quest for the seminal literature. To that end, this presentation is appended with an extensive bibliography, including items not specifically cited in the text.

The second step addresses the touchy issue of setting visual literacy's parameters. The approach of the authors is to categorize topics and fields of study as included in visual literacy, interactive with visual literacy, and related to visual literacy.

The third step in the quest provides a philosophy which links individuals in an otherwise multidisciplinary "movement." The intent is to generate a broad position statement that locates visual literacy in relationship to its parent disciplines.

Next, as step four, a redefinition of visual literacy is proposed. The persistent and descriptive problems that have plagued the visual literacy movement have, as often as not, been related to the matter of definition. Thus, one more attempt to deal with definition seems worth the effort--particularly so if set in the context of a field with stated parameters and an articulated philosophical position.

As a final step, the authors postulate a set of proposals that are designed to foster the further development and understanding of the theoretical foundations of an emerging field.

Historical Thinking

John L. Debes (Fransecky & Debes, 1972) coined the term visual literacy and founded its national conference. The International Visual

Literacy Association (IVLA) grew out of that first conference and today has its headquarters at the National Center for Visual Literacy, Gallaudet College, Washington, D.C. With the help of Eastman Kodak Company in Rochester, New York, Debes organized the First Annual National Conference on Visual Literacy in March, 1969. From this conference came the first major publication in the field (Williams & Debes, 1970) and a definition of visual literacy that was later adopted by the Association for Educational Communications and Technology. [Note: In spite of AECT adoption the definition has never been widely accepted. See comments to follow.]

The search for the theoretical foundations of visual literacy is a process that is well underway. In the dozen years which followed the founding of IVLA a number of theories and theory-based offerings were given to the field. These have covered a wide range of topics. The list that follows does not attempt to identify the ways in which either these topics or these theoretical papers overlap, and it should be emphatically stated that the examples cited are merely representative works. Some of the theories have dealt with: visual languaging (e.g., Ausburn & Ausburn, 1978; Debes, 1972, 1974; Turbayne, 1970), visual thinking (e.g., Arnheim, 1969; Haber, 1970; Wileman, 1980), visual learning (e.g., Dwyer, 1978; Jonassen & Fork, 1978; Randhawa, Back, & Meyers, 1977), hemispheric lateralization of the brain (e.g., Bogen, 1979; Ragan, 1977; Sperry, 1973), mental imagery (e.g., Fleming, 1977; Kosslyn & Pomerantz, 1977; Pylyshyn, 1973), levels of abstraction (Clark & Clark, 1976; Clark, 1978), cultural interaction (Cochran, Younghouse, Sorflaten & Molek, 1980), and the interactive theories dealing with symbol systems and dual coding (e.g., Levie, 1978b; Levie & Levie, 1975; Paivio, 1971, 1975; Salomon, 1972, 1979).

And there is much, much more. There has been a veritable outpouring of germinal papers: Debes (1969) suggested a hierarchy of visual skills. Williams (1970) advanced nine visual literacy propositions. Dwyer (1972) and his students have methodically examined the realism continuum. Dondis (1973) brought out a basic textbook. Lamberski (1976a) and Fork and Newhouse (1978) compiled collections of papers about visual literacy. Fleming and Levie (1978) drew upon the research of the field and compiled an extensive set of principles for the design of instructional visuals. Hocking (1978) offered a comprehensive analysis of factors related to visual literacy goals. Duchastel (1978) introduced and with Waller (Duchastel & Waller, 1979) elaborated upon a system for the functional categorization of illustrations. Levie (1978), Cochran et al. (1980), and Winn (1980) have all provided guidance for future research in the field. Wileman (1980) categorized types of verbal/visual image relationships in a landmark text on visual thinking. Winn and Holliday (1981) derived a set of design principles for diagrams.

But wait! Is this merely a shotgun blast of vaguely related theories that is conspicuously missing a comprehensive theory of visual literacy? We must acknowledge that some writers do not believe that there is such a thing as a theory of visual literacy. Johnson (1977), for instance, identified no single theory of visual literacy but found a "confluence of theories" (p. 140). He prefers the term media literacy to visual literacy. Johnson (1977) wrote:

> I was disappointed to discover that visual literacy is really nothing more than a "confluence of theories," brought together to form a vague, unorganized concept that tries to explain the notion of "visual sequencing." It is not surprising that the visual literacy "movement" has not "moved" very far. The movement has generated some "research," (most of which is rather confusing), and the term "visual literacy" has gained some "currency" in educational circles. However, very few of the conclusions reached by visual research can be used for teaching English. (pp. 140-41)

One way to answer the challenge of statements like Johnson's is to come to grips with what is and what is not visual literacy. To dig up an old phrase, the time has come to "set the parameters of visual literacy."

The Issue of Parameters

Setting the parameters of visual literacy is not an easy task. The problem was contaminated at the outset by Debes (1970) when he compared visual literacy to an amoeba. In Debes' model, the pseudopods of the amoeba included philosophy, technology, art, graphic arts, psychology, linguistics, rhetoric, programmed learning, and semantics. Debes suggested some parameters, but in actuality the relationships were tentative. Sadly, not much has changed since Debes' pathfinding article.

Some scheme is still needed to identify more precisely the parameters of the field of visual literacy. And, it might be hoped that such a scheme might generate a broad position statement that positions visual literacy in relationship to its parent disciplines. If that purpose is to be achieved we must change our metaphor. We must abandon the amoeba concept which has visual literacy reaching out in all directions--intruding, if you will, into other disciplines. Rather, we must look at the field and clarify each of the relationships. For example, we must ask ourselves, does visual literacy "reach into" art, or does art "reach into" visual literacy, or are the disciplines of art and visual literacy distinct and separable disciplines peopled by individuals with many common interests.

It is not the purpose of this paper to identify every relationship between visual literacy and other disciplines. However, an important purpose is to emphasize the need to have the nature of these relationships clarified. In that spirit, the authors would like to start by identifying a scheme based upon three basic relationships. These can all be shown graphically in variations of the Venn diagram.

The first relationship is that of *included* (Figure 1), which is the relationship of visual literacy as a whole to those areas of concern and inquiry which are totally subsumed by visual literacy. Visual language is the example shown in the figure. Everything about visual language is of concern to the field of visual literacy. As shown in Figure 1, the concerns of visual literacy exceed those of visual language, which represents an opinion of the authors. If there are visual language advocates who disagree with that depiction, then there should be open dialogue until consensus is reached.

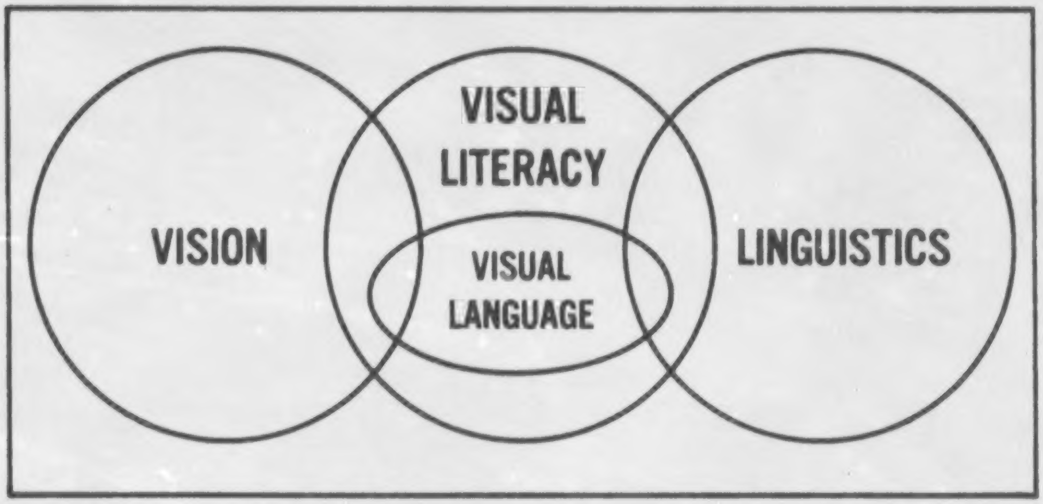

Figure 1. "Included" and "Interactive" Examples

Also in Figure 1, a second relationship is shown between visual literacy and linguistics. This overlapping or *interacting* relationship implies that visual literacy is not concerned with all aspects of linguistics, and conversely, the field of linguistics is not concerned with every aspect of visual literacy. However, a hoped for implication is that there are many concepts, theories, and processes which are common to both visual literacy and linguistics.

There is a large group of other topics and fields of study which we classify in a third category termed *related* (to visual literacy). This concept, too, may be supported by a graphic representation (Figure 2). In this case the illustration suggests that the differences between the two fields of study are fairly clear. The example chosen is the relationship between fine art and visual literacy. Although art critics may disagree as to whether a particular object is or is not "art," the ways in which works of art are interpreted is more a matter of aesthetics than of visual literacy. On the other hand, graphic arts

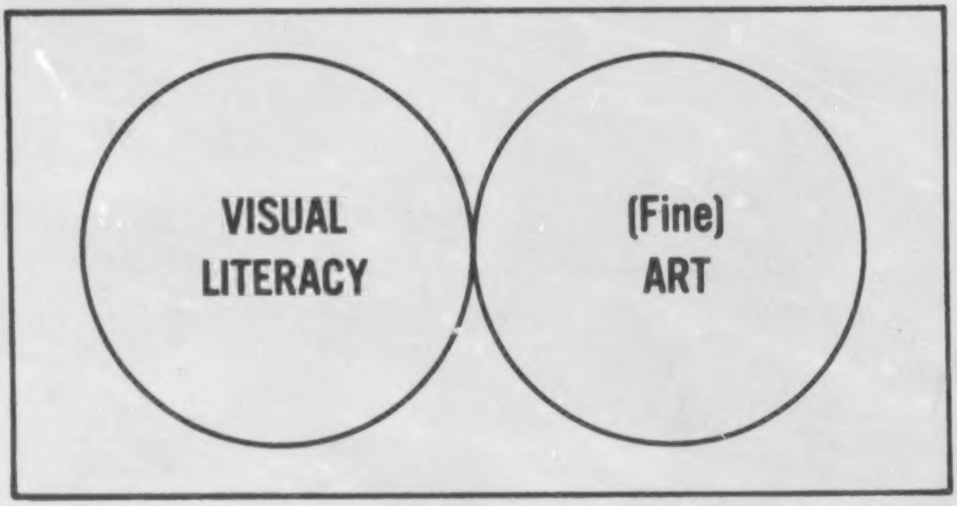
VISUAL LITERACY
(Fine) ART

Figure 2. "Related" Example

are a mainstream concern of visual literacy (Figure 3). Graphic art interacts with fine art in many ways, including a shared concern for aesthetic values, but as illustrated these are not the things that link graphic art to visual literacy. Rather, the linkage is bonded in the shared interest of the two fields in message transmission as an aspect of communication.

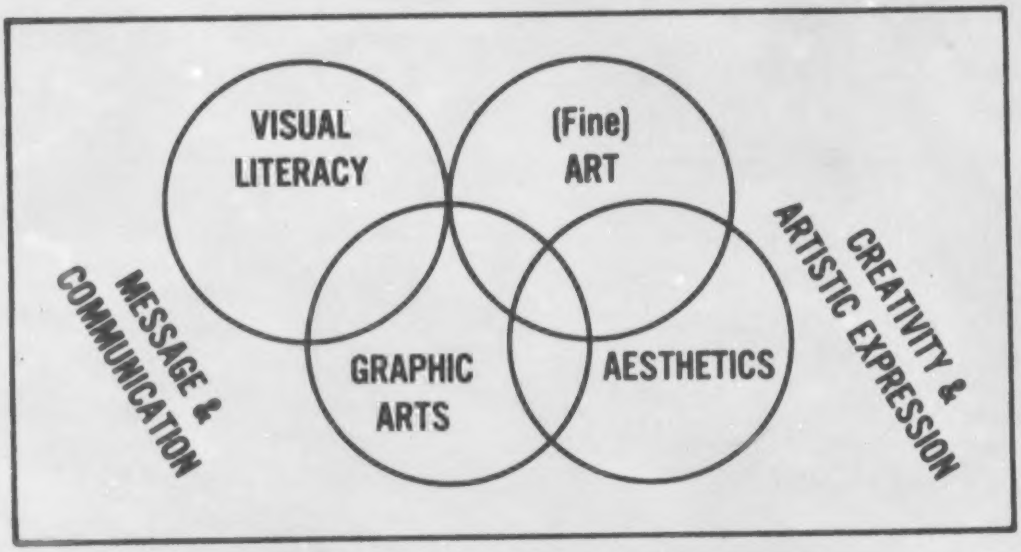
VISUAL LITERACY
(Fine) ART
MESSAGE & COMMUNICATION
GRAPHIC ARTS
AESTHETICS
CREATIVITY & ARTISTIC EXPRESSION

Figure 3. "Related" and "Interactive" Examples

It is unlikely that any of these relationships could ever be cast in stone. It may not even be possible to gain a consensus agreement upon the nature of a relationship. For example, these writers believe that the relationship between visual literacy and cognitive psychology is a very close interacting relationship (Figure 4). A psychologist might view the relationship as more remote, what we term "related," or might even consider the relationship to be extremely remote with only the vaguest of interconnecting threads between the two fields. It is even possible that visual literacy might be considered as a subset of psychology and thus be viewed as "included"--a relationship not shown in any of the figures.

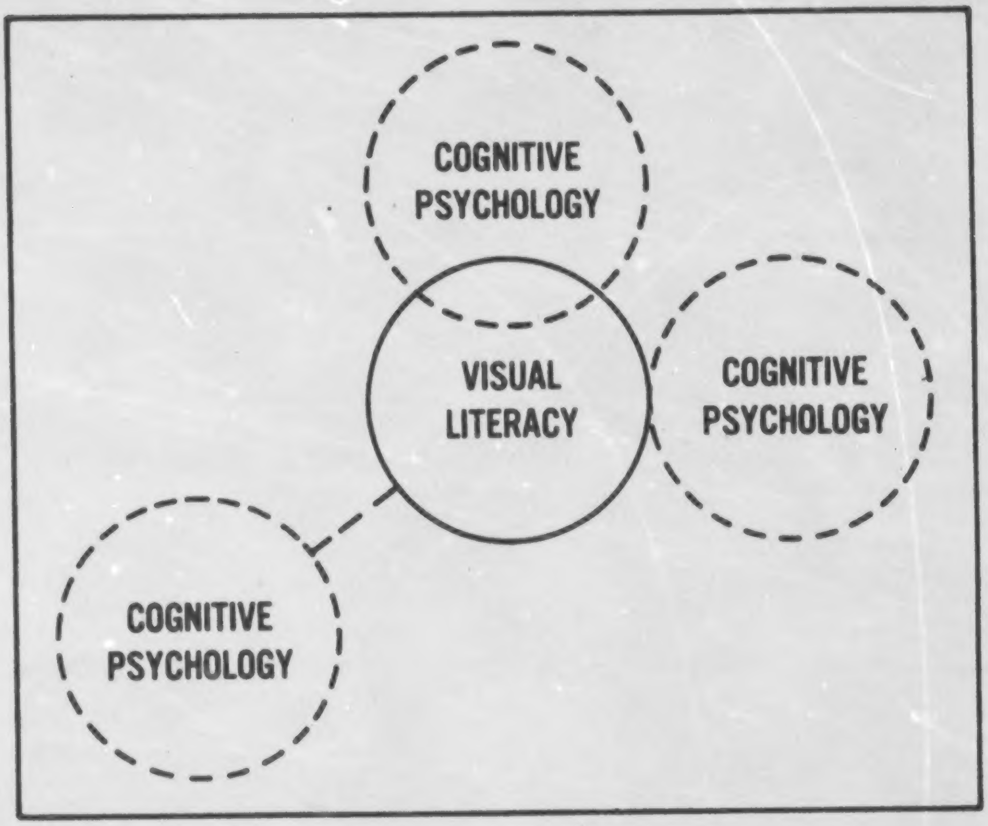

Figure 4. Unresolved Relationship

The important issue here is that visual literists must reduce rather than expand their identified core area of interest. That does NOT mean that they must forego their related interests. Rather, it means that the time has come to decide which is which. Audiovisual education *interacts* with but is not subsumed by visual literacy. The split brain research of Nobel winner Sperry is extremely interesting but is barely *related* to visual literacy. Visual design is *related* to visual literacy, but design of instructional visuals is *included*. Such are a few of the relationships, and such are the ways that they should be commonly considered.

Position Statement

With this attitude in mind, you could now look back at the list of theoretical topics presented above and we could open a dialogue as to where the parameters of visual literacy begin and end. In an attempt to generate a level of discussion that might evoke a response that would relate visual literacy to its parent disciplines, the bibliography which accompanies this paper has been keyed to the authors' notions as to which writings are included-in, interactive-with, or related-to the study of visual literacy. The effort is offered as a straw man, and counter positions are encouraged.

Although it is our hope to eventually stimulate a widely agreed upon philosophy which links individuals in an otherwise interdisciplinary "movement," that goal may still be out of reach. For one thing, it is unrealistic to expect philosophical agreement when we have not, as yet, agreed upon a definition of the term visual literacy.

A Definition

A simple definition will serve best. Then, if we can promote the idea that any number of things can and should be closely related to the practice, research, and theory of visual literacy, the "movement" can proceed in a healthy interdisciplinary way. With those somewhat lofty thoughts in mind, we therefore offer this definition:

> Visual literacy is the ability to understand and use images, including the ability to think, learn, and express oneself in terms of images.

The definition is intended to incorporate the essentials of visual learning, visual thinking, and visual language. It is also intentionally directed at the individual, who in the final analysis must develop the "ability."

A Set of Proposals

While we do not expect that the above definition will be wholly satisfactory to everybody, we sincerely hope that it is not totally unsatisfactory to anybody. In its simplicity we hope the proposed definition has utility for all visual literists. Thus we choose to make the definition the subject of the first of several proposals. The purpose of the proposals is to foster the further development and understanding of the theoretical foundations of the emerging field of visual literacy.

Proposal 1. IVLA, as the pre-eminent organization speaking for the field of visual literacy, should adopt an official definition of the term "visual literacy." The definition proposed above, if acceptable to the membership of IVLA, is freely offered for that purpose. In the event that the proposed definition is not acceptable, an acceptable but equally simple substitute should be adopted.

Proposal 2. IVLA should officially sanction the notion that there is a *body* of fact and theory in regard to visual literacy. This would establish an environment in which competing and complementary theoretical positions could co-exist. A logical consequence might be for IVLA to sponsor a project designed to unearth, clarify, and consolidate the theory of the field. Another consequence might be the evolution and strengthening of the natural philosophical linkages which are necessary to bind a diverse discipline.

Proposal 3. Visual literacy advocates, perhaps through IVLA, should encourage the development of special interest visual literacy groups from the professional areas of art, English, reading, psychology, neuropsychology, philosophy, linguistics, communications, film and TV, graphics, educational technology, and perhaps others. The special interest groups could be formed in either IVLA or in the associations of the related disciplines. The affiliate relationship of IVLA to AECT is an example of a start in this direction.

Proposal 4. Some individual or group of individuals must bring the burgeoning literature of the field under control. At this stage, the fate of an identified expanded literature is dependent upon bibliographic refinement through some step-by-step process of successive iterations. This will continue, pending the emergence of an individual scholar or team of scholars who will undertake a major project to locate, classify, annotate, and evaluate everything that can be found that deals with or relates to visual literacy. Thus, however useful the efforts may be of individuals like Levie (1978a, 1979), Cochran (1980), Bogen (1979), and the present authors, these efforts are only stopgaps, awaiting a comprehensive, exhaustive bibliographic work. In all probability the work will not be forthcoming unless sponsored by IVLA, ERIC, or by a foundation grant.

Proposal 5. The concept and practice of visual literacy should be enhanced by research and testing. This is not a new idea (Cureton & Cochran, 1976, Cochran et al., 1980), but it bears restatement whenever the future of visual literacy is up for discussion. As in any practical field, visual literacy has many practitioners who have little interest in performing research. Still, these same practitioners rely upon the results of published scholarship to identify for them the elements of good procedure, to provide guidelines for professional improvement, to suggest innovative possibilities, and to verify (or reject) the validity of routines which have been initiated intuitively. Research also can assist in setting visual literacy's parameters through comprehensive surveys such as the one by Hocking (1978) that set out to determine visual literacy goals.

Key: Incl = Included
I-A = Interactive
Rel = Related

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COURSE OUTLINES

Whenever people in any field come together for a conference or convention, they bring with them at least four common interests. As professionals they are concerned about what is known in their field, what is now being or has recently been discovered to extend that knowledge, how that knowledge is put into practice, and, finally, how that knowledge is taught. The result of these interlocking interests usually can be seen in the variety of offerings on the program.

In terms of numbers, knowledge of the field and its further discovery tend to dominate, with presentations of theory and substance competing for popularity with reports of findings and explanations of research methodologies. Fewer in number are the offerings of practitioners--case studies, demonstrations, and experiential accounts. At a typical IVLA conference the practical topics are well represented in workshops and in some of the highly visualized sessions.

The fourth area of common interest, the pedagogy of the field, is more often than not missing in conference programs. Further, the occasional presentation about teaching in a discipline is more likely to deal in theoretical terms than practical ones. We are fortunate, therefore, that two of the 1981 IVLA contributors were willing to share details about the content and organization of courses they teach. In both cases the presentor's major goal was to identify the nature of the course and in so doing to offer a course outline. Ron Sutton has also provided commentary on the context of his course. Tim Tassie's approach was one without a written narrative.

PREPARING A REQUIRED COLLEGE COURSE: VISUAL LITERACY

by

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In the spring semester of 1982, a new course titled Visual Literacy 17.202 will be taught for the first time in the curriculum of the School of Communication at the American University in Washington, D.C. This paper and presentation will report on the development of that course. Background and the context in which the course will be taught will be sketched, an outline of the course will be drawn, and part of a presentation within Unit IV "Reading the Moving Image and Sound" will be offered. Feedback will be and is encouraged about the course design, structure, sequencing, resources, and materials.

The American University is a private institution in the northwest area of the District of Columbia. At present the enrollment is at 12,000 students. The university is composed of the School of Nursing, the Washington College of Law, the College of Public and International Affairs, the College of Business Administration, and the College of Arts and Sciences. The School of Communication is the largest unit within the College of Arts and Sciences. Its 800 majors, taught by 15 full-time faculty, are divided into four distinct but interconnected programs: Print Journalism, Broadcast Journalism, Public Communication, and Visual Media. The Visual Media program contains 250 majors in the areas of film, photography, and television. There is a graduate program involving 20 students in Film and Television and it is conducted jointly with the Literature Department which handles an undergraduate major and minor in Cinema Study and Criticism. Additional interdisciplinary programs involve the Physics Department (Audio Technology-Recording/Engineering) and the Performing Arts Department (Acting and Directing for Television). Most all of this activity takes place in the presentation theater equipped to display 8mm, 16mm, 35mm film, as well as slides and video.

Until this fall, the Visual Media curriculum required students to specialize as first semester juniors in either film, photography, or television. Writing and Film/Photo/TV study courses were required as well. Strengthened by a grant (for Faculty Development) from the Mellon Foundation, a new and revised curriculum was developed in 1980-81. It is being instituted during the academic year, 1981-82. The Visual Literacy course was developed as a part of this new curriculum. The structure of that curriculum is as follows:

Visual Media Major:

Freshman year: Fall semester - no course in Communication - University requirements

Spring semester - Introduction to Mass Media

Sophomore year: Fall semester - Writing for Mass Communication

Spring semester - Visual Literacy

Junior year: Fall semester - Lens and Image (Basic Photography)

Editing: Audio, Film, and Video

One media studies course

Spring semester - Location Film/VTR (Photography students take Intermediate Photography)

Introduction to Studio TV

Writing for Visual Media

One media studies course

Senior year: Fall semester - Film I or Video I or Studio I (Photography students take Advanced Photography)

Advanced Writing for Visual Media (optional)

One media studies course

Spring semester - Film II or Video II or Studio II (Photography students take Lg. Format Photo)

Advanced Writing for Visual Media (optional)

Internship in D.C. area or Indep. Study

One more media studies course (optional)

(42 credit hour limit in SOC)

Even a brief glance at the curriculum will show that Visual Literacy is a key course for students moving to upper level work in SOC's important Visual Media program. It must keep the needs of film and video makers, photographers, writers, and educationalists-critics, as a student population, in mind.

In early planning, it was hoped that small sections might be developed. Financial exigencies exploded that hope and the course will contain 100 students and be taught each spring and perhaps in the summer session for transfers, incoming graduate students and at large. It was also hoped that the course might, even with 100 students, contain some illustrative or learn-by-doing production work. Lack of finances and equipment to support such a move dictates that the course be a large group, lecture-presentation course. Not an ideal situation for student involvement or participatory learning, but a given at present. So that course details look something like this:

> "For all students intending a major in Visual Media, Visual Literacy is a required course taken any time after the freshman year. Offered once a year, it has a class limit of 100 students. Taught by Professor Ron Sutton, it will involve guest speakers, as well as two teaching assistants from the undergraduate or graduate student body. It carries a $5 lab fee for rentals and equipment use. It will meet on Mondays and Thursdays 9:55-11:10 a.m. in the Wechsler Theater in The Media Center."

At present the course outline is as follows:

17.202 Visual Literacy: Learning to See

Course Purpose: To assist students in understanding visual imagery. To provide experiences so they might learn to "see" in a discerning manner. To open them to study areas of the university curriculum (Art History, Photography, Film, and Video) that will assist them in deepening their own study of visual literacy. To help them understand that visual literacy is the awareness of the image and sound as a series of production decisions.

INTRODUCTION (1½ weeks): The course begins by exposing the students to sophisticated imagery in still photography, film, and video. This will serve as a pretest of sorts, a challenge, a setting forth of goals, and an overview of the entire course. It will be clarified that visual literacy means being able to speak and write critically about the visual media, as well as create it.

Possible Images and Resources: Glass, Frank Film, opening clip of Hiroshima Mon Amour, Henry Miller video tape, Media Burn, Moth Light, Report. Photographs of Bresson, Arbus, White, Sommers, Siskind, Weston, Cunningham, Man Ray.

UNIT I (1½ weeks): The Science of Seeing - Three class lectures on the physiology and psychology of vision and perception. This will involve a brief look at the scientific basis of sight; recent research on how the eye and brain work with attention to the right-and left-hemisphere concept(s): the psychological basis of perception; Gestalt and field theory.

Possible Images and Readings: Slides and transparencies from Seeing With the Mind's Eye by Samuels and Samuels, Perception by Julian E. Hochberg, Man and His Symbols by Carl Jung, A Primer of Visual Literacy by Donis Dondis (required text). A focus or stress here would be on other university courses that would strengthen students' understanding in this area. Further readings will be offered in a Unit Bibliography.

UNIT II (2 weeks): The Art of Seeing - Four class lectures on the fine and graphic arts. Some guests, an artist and art historian, will lecture from Art History Department. The attempt will be to offer a selective study of high points and breakthroughs in painting with some attention to sculpture and architecture. Overview approaches will alternate with "post hole" studies, depending on the lecturers available and subjects chosen. Examples might include Picasso, Caraveggio, Van Gogh, or Warhol. The emphasis will be on understanding line, space, mass, perspective, color, design, etc.

Possible Images: Slides or film excerpts on the development of art history by periods or with focus on individual artists. Film: The East Wing.

Field Work: During this two-week period, students will be required to visit two different museums of art in the D.C. area; i.e., Freer, African, National Gallery, Phillips, etc. A report on this will be submitted.

Readings: History of Art by H. W. Janson, Art and Visual Perception by Rudolf Arnheim, Art and Illusion by Ernst H. Gombrich, Meaning in the Visual Arts by Erwin Panofsky, Icon and Idea by Herbert Read, The Visual Experience: An Introduction to Art by Bates Lowry (required text).

The stress here is to excite, motivate, and challenge the student to explore in elective or required related courses the development of art in our cultural history.

UNIT III (3 weeks): A New Way of Seeing - Six class lectures on photography. An overview of photography's development with special attention to high points and breakthroughs. A key problem here will be to deal with photography's apparent realism. Lectures will be planned jointly with the Photography faculty in Visual Media, especially those responsible for the History of Photography course elective.

Possible Images: Selected slides from the Photography collection and possible film on development of photography.

Field Work: During the three-week period, one trip to a D.C. photo gallery or exhibit will be required and reported on.

Readings: Looking at Photographs by John Szarkowski (required text), The History of Photography by Beaumont Newhall, Mirrors and Windows by John Szarkowski.

The stress here will be to underscore the importance of photography in all visual media work and to introduce the student to the upper level photography curriculum.

UNIT IV (4 weeks): Reading the Moving Image and Sound - Eight class lectures using short films and extracts to show how the moving image and sound makes its statement. Composition, shots, angles, lighting, frame, color, tone, and texture will be reviewed from Photography and Painting units with the addition of pacing rhythm and sound.

Possible Images: Films and tapes from the AU collection and nearby Prince Georges Library collection which would cover all types of film: narrative fiction, documentary, information, commercials.

Field Work: A visit to the American Film Institute or the National Archive would be required and reported on.

Readings: Film As Art by Rudolf Arnheim, The Film Experience by Huss and Silverstein (required text), How To Read a Film by James Monaco, The View From the Highway by Michael Arlen, Understanding Movies by Louis Giannetti.

The stress here would be to introduce the student to the critical study of the moving image and sound. To encourage and motivate further study in the historical and critical media studies courses in the School of Communication and the Department of Literature.

Note: The sample presentation was taken from this section of the Visual Literacy course. It involved using The Diving Sequence from The Olympiad by Leni Riefenstahl, as well as selected slides on Understanding Movies, mostly from a text of that name by Louis Giannetti of Case Western Reserve.

UNIT V (2 weeks): Seeing the Future: Avant Garde Imagery and Technology - Four lectures presenting again as in the course's opening week sophisticated imagery, this time including and illustrating avant garde technology, theory and criticism, including a touch of semiotics, structuralism, and Marxist analysis.

Possible Images: Independent films and tapes of all kinds. Excerpts of feature films as available, and as much visual and print handout information as possible on abstraction, photo-holograms, lasers, etc.

Readings: Experimental Cinema by David Curtis, Expanded Cinema by Gene Youngblood, Ways of Seeing by John Berger (required text), Technology and Cultural Form by Raymond Williams, TeleVision magazine (current and back issues).

The stress here would be that change is dynamic and rough; it is connected to the economic realities as well as cultural, social, and political priorities. "Blue sky" vs. "reality" in history.

CONCLUSION: One week would be allowed for review and evaluation before the administration of the final examination. At present a 15-week course is envisioned. Assignments would include quizzes on readings, field trip reports, a short, take-home mid-term and final with a possible paper or unit reports as the course evolved.

Note: At this point, a partial lecture-presentation was given from the fourth unit "Reading the Moving Image and Sound." This concluding demonstration included the use of a film clip and slides.

TEACHING TEACHERS TO USE INSTRUCTIONAL TELEVISION EFFECTIVELY

by
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The purpose of this presentation was to provide a description of a graduate level (two week summer) course for school personnel dealing with: A. Instructional potential of professionally prepared resources made for television; B. Using video equipment to record programs and to produce local school video projects; C. The future of video technology in instruction; D. The relationship of the state ITV network to local school districts and individual teachers. The present course plan is the result of the experience of four summers at three state universities. What follows is a condensed version of the course syllabus given to the students. The title of the course is "Using Instructional Television."

Course Outline

Day 1 - Introductions
- Course Goals and Schedule
- Instructional Potential of Television
- Course Requirements
- Introduction to Video Technology
- Introduction to Viewing Stations

Day 2 - Instructional Resources from KET
- The Video Technology Explosion
- The Television Receiver/Monitor
  - Hands On the Television Receiver/Monitor
- Work on Viewing Stations

Day 3 - Using Instructional Television in the Classroom
- The Video Recorder/Player
  - Hands On the Video Recorder
  - VHS Format (½" cassette)
  - U-Matic Format (3/4" cassette)
- Continue Viewing Stations
- Work on Project (final day for approval of topic)

Day 4 - Television Critical Viewing Skills
- The Video Camera/Portapack
  - Hands On the Studio Camera
  - Hands On the Portapack
- Form Groups for Production - begin planning
- Continue Viewing Stations and Project

- Day 5 - Visit KET: Four Hour Television Production Seminar and Tour
    - ITV on the State and National Level
    - Designing an ITV Series
    - The Art of Animating
    - The Art of Interviewing
    - Producing and Directing an ITV Series
    - Tour of KET Network Center

- Day 6 - Production Techniques
    - Scripting
    - Graphics and Photography
    - Audio Production
    - Video Production and Lighting
  - Choose Subject for Group Production (get approval)
  - Continue Viewing Stations and Project

- Day 7 - Commercial Television, Copyright and Schools
  - Continue Viewing Stations and Project
  - Continue Work on Group Production

- Day 8 - Introduction to Video Tape Editing
  - Continue Viewing Station and Project
  - Continue Group Productions

- Day 9 - Complete Viewing Stations and Project
  - Complete Group Production

- Day 10 - Share Project Results
  - Share Group Production
  - Turn in Projects
  - Post Test and Evaluation

ITV COURSE GOALS

A1 - To understand the instructional potential of television
A2 - To know the instructional and technical services available to school systems
A3 - To gain familiarity with ITV resources in various subject areas
A4 - To know how to obtain supplementary materials for ITV programs
A5 - To learn ITV utilization techniques for classroom planning, introduction, viewing, and follow-up
A6 - To participate in critical viewing skills activities
A7 - To become familiar with copyright law as it applies to ITV use in schools
A8 - To prepare a personal plan for effective usage of ITV for the coming year

B1 - To become familiar with new developments in ITV technology
B2 - To understand the basics of video technology and terminology
B3 - To use VCR and monitor for recording and playback
B4 - To learn to operate small format video production equipment

B5 - To learn and perform basic TV production techniques
B6 - To produce (script, shoot and edit) a short video program

C - To gain familiarity with KET Network Center facilities and operations

COURSE REQUIREMENTS

I. Assigned Readings:

A. Copies of several articles have been provided and will be assigned for study relating to various topics of discussion.

B. Questions relating to those articles will be asked on the day following their assignment.

C. Locate one article in the library concerning television's effect on schools or society. Report to the class your findings (including source and date).

II. Television Viewing Stations (must do at least 5 of 8):

A. Each station will consist of
   - Print material to read
   - Tapes to watch
   - Assignments

B. After reading the description of the series in the KET Guidebook or other print material provided, choose the tape or tapes most interesting or useful to you.

C. Watch the entire tape or tapes.

D. Do assignments.

E. Turn in completed assignments.

III. Equipment Proficiency:

A. Complete classroom equipment instruction and hands on activities.

B. Demonstrate proficiency in all operations listed on Use of TV, VCR, and Camera sheet.

C. Get initials on all items on the Equipment Proficiency Checklist.

D. Turn in checklist when completed.

IV. Individual Instructional Project:

A written plan for effective use of television in the classroom, school or system. The plan should include:

A. A description of participant's role in school system.

B. An assessment of school equipment
  1. Television sets (working? color?)
  2. Video recorder - video tape availability
  3. Television signal
    a. Source
    b. How signal is distributed in building

C. Specific plans for the coming year (get approval)

This part of the project will be determined by the participant's role and school situation. The key is that the project should become immediately useful.

V. Group Video Project:

Five to eight minute group production in the studio or on location. (See list of suggestions)

A. Form group and select topic (get approval)

B. Prepare a script

C. Record audio and video (keep log)

D. Produce graphics

E. Edit the production

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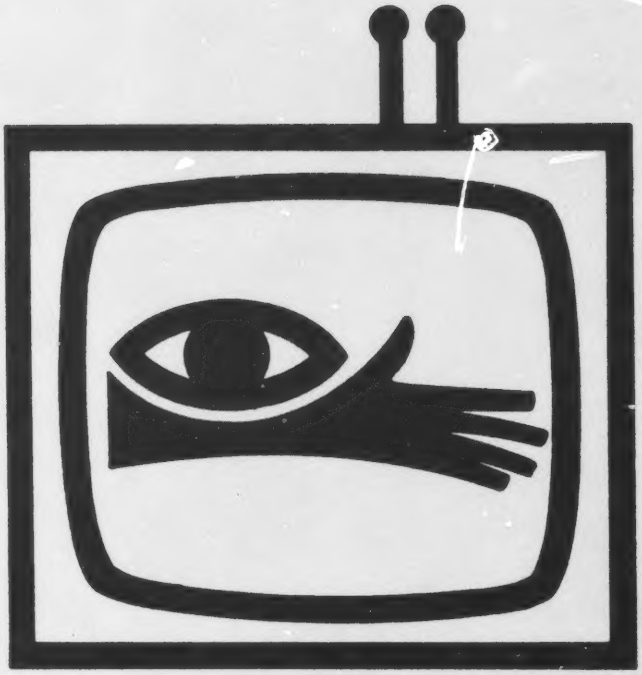
DEMONSTRATIONS, APPLIED THEORY & CASE STUDIES



The papers in this section are grouped together because they share the thread of practicality. These sessions deal, for the most part, with concrete *matters as opposed to abstract issues. Or, as LaVerne Miller phrased it, they deal with the real "nitty gritty."*

"Practicalness" as a characteristic of a presentation correlates positively with participation and negatively with formal writings. It is not unusual that a practical application workshop be devoid of expansive explanations of the subject matter. Outlines, handouts, and hands-on activities are more likely to be the substance of such sessions.

Although all of these papers share a common thread, they represent conference sessions of quite varied nature. In the workshops, the audience is actively involved in "doing." In the demonstrations, things and techniques are being shown. In the case studies, a story is being told. These differences are reflected in the form of the papers that the sessions generate.

We find the natural form of the application and demonstration presentations to be the opposite of that for case studies. The former are filled with events that are seen or heard but not necessarily fully recorded in writing. The latter are verbal narratives, usually well documented, which expound upon the events, virtues, and unusual characteristics of their subject. You will find both kinds of papers presented here.

DESIGNING VISUAL PRESENTATIONS

by

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The process of developing effective audio-visual materials for instruction involves three major phases: planning, production, and presentation. This paper concentrates on the production phase of instructional material development, particularly visual design. Information on designing visual messages comes from several sources: general design principles of artists, research in the behavioral sciences, media design research, and from the intuition of experienced producers. The illustrative slides, transparencies, and video clips that comprise this presentation cannot be included in this paper; therefore, the following will be an outline of key program ideas with some brief explanations.

General Design Principles

There are a number of design principles that have been mentioned in a variety of publications. Those listed are of particular importance to the designer of audio-visual materials.

- Simplicity - Are there any unnecessary elements in the visual?
- Harmony - Do all the elements of the visual fit together in a harmonious relationship or are some elements contradictory?
- Emphasis - Are the most important elements of the visual emphasized?
- Legibility - Is the lettering within the visual legible?
- Organization - Are the elements of the visual arranged in a pattern that is easy for the viewer to comprehend?
- Balance - Are all of the elements of the visual arranged in a manner which is interesting but not distracting?
- Unity - Are the elements of the visual arranged so they form a single unit?
- Clarity - Is the purpose of the visual obvious to the audience for whom the message is intended?

Behavioral Science Research Principles

Research studies in selected areas of the behavioral sciences that contribute to our knowledge of message design are well summarized in a book by Fleming and Levie (1978). In this paper it is impossible to mention all the studies they cite, so key points in the areas of perception, memory, concept learning, and attitude change will be addressed.

Perception

- Perception is relative. For example, in terms of color, size, brightness, and even loudness we see things in relation to others. Snow under a clear blue sky is a different color than snow under the warm light of a sunset, but we see both of them as white. Film, however, sees them differently. If a complex, very brightly colored visual image is followed by a simple, less colorful visual image, the latter's importance may be underestimated. The use of reference points, such as a ruler to indicate size, will increase the accuracy of perception by learners. Also, an object of known size, such as peas in a pod, can be used instead of a ruler to show the size of an unknown object, such as a small electrical component.

- Perception is selective. There are many times in our visual environment, such as when we are at a fairground, that a person would like to attend to everything at the same time. However, because perception is selective we can only attend to a limited amount at a time. Therefore the amount of information contained in a visual should be limited to that which is pertinent or the viewer may concentrate on irrelevant information. For example, a map of a country does not need to show the country's physical features if its instructional purpose is to teach about the location of cities. A good guideline to follow, when possible, is to limit the number of items presented in a visual to six or seven.

- Perception is organized. The way elements are organized, or not organized, in a visual will affect how they will be perceived. For example, in a visual with alternate rows of circles and squares the viewer will tend to see horizontal lines rather than vertical lines because of the organization of these circles and squares. Designers need to organize the elements of a visual so the viewer is not confused. Use of organizers such as arrows or numbers will help the viewer to see or follow the intended message. Also, use appropriate organizational patterns such as circles for cyclic events when illustrating, for instance, the life cycle of a butterfly. Remember, the better a message is organized the more information the viewer can process at a time.

- Perception is influenced by expectations. What we expect to perceive (see) can affect what we do perceive (see), as well as the kinds of alternative interpretations. For example, if the instructor says, "Notice the use of color in this painting by Picasso," such a statement focuses the viewer's expectations on a study of color, as opposed to a study of line or shape. Visual cues such as subheadings on a page can direct the reader's expectations, and informal styles can develop an expectation of interest. For example, a social studies book that is produced in a comic book format helps create the idea that the book will be fun to read.

- Attention, Color and Basic Features. Getting and keeping a viewer's attention is naturally important and a visual designer does this by using movement or by varying the size of the pictorial subject, creating changes in brightness, using color and adding novelty where appropriate. These attention-getting techniques are used extensively on Sesame Street.

- Research demonstrates that color influences our perception. Evidence shows that color preferences and color visibility are quite different. Red, blue, and green are the colors most people prefer, yet the most visible colors are white, yellow, and green; and the least visible colors are red and blue. More still needs to be learned about how various colors are perceived and how they can be used effectively.

- The basic features--the lines and shapes of a drawing or photograph--have a lot to do with how the image is perceived. For example, the vase and faces illusion in which figure and ground can easily be confused is one popular illustration. Also, there is a tendency for smoothly curved lines or shapes to stand out more than rectangular lines and shapes. Design visuals taking into account lines and shapes so that the important elements will stand out.

Memory

- Meaningful material is learned more easily and remembered longer.

- Association is facilitated when items are shown together.

- Repetition aids memory.

- Learning depends on consequences.

- Learning can be increased by using two concurrent modes.

- Objects and pictures of objects are remembered better than their names.

- Organizers provide a pattern that facilitates learning.

- Questions can facilitate remembering.

Concept Learning

- Use a variety of examples and nonexamples.

- Simplified pictures are sometimes more effective than realistic pictures.

- Combining names with examples is effective.

- Present criterial attributes in list form.

Attitude Change

- Use credible presenters. Perceived expertness and trustworthiness are key factors in choosing a presenter. In addition, good delivery is essential.

- Use attractive presenters. Attitude changes are more likely to take place if the presenter is attractive. Some things that influence attractiveness are cultural and ideological similarity and physical appearance.

- Design materials carefully.

Media Design Research

Media studies can be divided into many categories; however, of particular interest are studies dealing with audience involvement, visual presentation, and structure.

Audience Involvement

Studies on audience involvement show that use of familiar settings does promote learning. A blatant example of using an unfamiliar setting is having a class that is made up predominantly of lower socioeconomic children learn from a reading book that contains illustrations of affluent family life and suburban living, and the same would hold true for the reverse of this situation. Promoting audience participation is certainly a key to learning. When teaching skills learners feel more involved when they can practice step-by-step while watching an instructional sequence. If the instruction is on using a calculator, it is more effective when the learner is following step-by-step using his own calculator. Also, showing incorrect responses, as well as correct ones, common errors in technique and whenever possible showing these things from the learner's viewpoint will increase audience participation.

Visual Presentation

Pictures. Media research has shown us much that can be applied toward developing more effective audio-visual presentations that relate directly to the pictures themselves. There are several important points to remember:

- When taking a picture avoid excessive detail by moving closer or changing the viewpoint.

- Although black and white may communicate effectively, color is preferred by viewers.

- Color is useful as a cueing technique. Colored pointers or arrows can be used to focus attention on important parts of a visual.

Lettering. Lettering is another aspect of visual presentation that must be considered carefully:

- Lettering height should be no less than one twenty-fifth (1/25) the height of the artwork to be copied.
- Simple styles are more easily read than complex styles.
- Medium or medium-bold letters are more legible than very light or ultra-bold letters.
- In general, a combination of capital and lower-case letters is more legible than all capitals.
- Medium contrast is preferable to very low or very high contrast.
- One and one-half (1½) letter widths between words and one and one-half (1½) letter heights between lines is optimal.
- Fifteen to twenty words on a visual are maximum for effective instruction.

Graphics. Graphics is another area where research contributes to practice:

- Line graphs are best used to show how one quantity is related to another.
- Bar graphs are best used to compare magnitude or size.
- Rectangular shapes are better than circles for comparing relative size.
- Circle charts are best for comparing parts with a whole.

Structure

Media studies have contributed to visual design decisions in terms of providing a structure for the learner which includes orientation, repetition, and learning pace. An initial orientation or introduction can help increase learning. Summaries will also help learners to remember the important points. In addition, it has been shown that repetition is a very significant key to learning. In fact, repetition is the major factor in instructional effectiveness. Note how much Sesame Street uses repetition. Instructional materials should develop at a pace that is appropriate to their learners and learner-paced materials are often ideal.

Intuition of Experienced Producers

Experienced producers have provided us with many ideas that can help make our visuals more effective. Some of these are:

- Encourage viewer participation.
- Provide a sense of discovery.
- Use camera techniques that lead the eye to the important parts of the picture.
- Use labels when they can serve a purpose.
- Use pacing appropriate to the viewer, subject, and expected response.
- Plan materials for projection, printed materials are rarely appropriate when copied for projection.

Summary

Maintain Visual Simplicity

Carefully select pictures and words that will get your message across. Leave out details that do not contribute to the message and remember that simple illustrations usually are more effective than complex ones.

Maintain Verbal Clarity*

Use a conversational style. A narration should sound as though one is talking with the audience, not at the audience. Write for listening, not for reading. A reading vocabulary is quite different from a listening vocabulary. Use simple words and sentence structure. Simplicity is important to maintaining verbal clarity.

Consider Visual-Verbal Relationships

Be sure that the visual and verbal elements make the same point and do not contradict each other. If a key point is being made visually, avoid verbal distractions and if a key point is being made verbally avoid visual distractions.

Organize Elements for Visual-Verbal Flow

When organizing content elements, be sure to choose carefully and place them to help guide the attention of your audience. Design principles can be used as one resource,and words should flow logically connecting the visuals. In a visual-verbal relationship the visuals should be appropriate to the ideas being communicated and the verbal portion should only be used to identify or describe visual elements and to add a small amount of extra information.

*The term "verbal," as it is used here, means the spoken and printed word.

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COMPUTER WORKSHOP

by

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Essentially, the development of computer graphics began about twelve or thirteen years ago. There are some notable works produced in the late sixties and early seventies by a few artists who had access to large computers. Today, the development of the micro-computer has made computers so accessible that everyone can doodle and experiment with graphics on a new kind of canvas.

What intrigues me is that today people who would never dream of picking up a pencil to draw, people who would claim they "couldn't draw a straight line," are now creating graphic images by way of computers. What we see emerging is a new form of "folk art." Today the images are a hodgepodge ranging from hypnotic, geometric evolutions to explicit images of creatures and spaceships reminiscent of science fiction created in the 1930's.

Collectively, these images make a strong statement about who and what we are today.

EDITORS' NOTE:

As with many workshops, the presentation by Webb and Taylor consisted primarily of random notes with a variety of visual examples. We included here a presentor's paraphrase provided by Sidney Webb.

THE FORM AND CONTENT OF A PICTURE, AND THE ART OF IMAGE MAKING

by

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AUTHOR'S NOTE: The following paper is modified and certain sections are omitted to make it more readable without the important support of many pictures. In the presentation at the conference, 200 slides were used to augment the script. The asterisk indicates the introduction of a new slide.

Images have always played a very important role in the history of mankind. *In today's iconoclastic society, the role of the visual language is paramount. *Any form of progress in the worlds of science, *business, and industry would be impossible if they were denied the use of pictures. *Why does imagery play such a powerful role in modern society? *Pictures are carriers of information just as the spoken languages are. *Both are symbol systems to which we have arbitrarily attached meanings.

*Images transmit certain kinds of information more quickly, more efficiently *and more explicitly than words do. Would we be able to teach people--*as quickly as an image does--how to make a slipknot? It would certainly take us more time to instruct people verbally on how to do it! *The real value of the image lies in its capacity to transfer information that cannot be given in a faster or more efficient way.

When we read the word boat, we all create different images of a boat in our minds, according to our experiences and our imagination. *Our mental images will become more uniform when we define our boat by adding more descriptive words. These mental pictures will become more clearly defined when we receive additional descriptive information. *We can control the flow of information in a picture just as easily by being more or less visually descriptive.

*When we draw a shape like this [Slide No. 17, symbol of a tree], we look at a symbol that stands for trees in general. By adding more graphic detail *the stereotype symbol for trees changes into a symbol that stands for a particular category of trees: the evergreen [Slide No. 18, symbol of a Christmas tree]. *The image-maker controls the flow of visual data through the selection of subject matter, *the choice of pictorial elements, and by the form/design he employs.

*Starting up the spectrum from the most basic image, the symbol, *we eventually arrive at the very sophisticated and realistic picture, the representational image!

The visual information of a picture is transmitted to us from three levels, the representational, the symbolic, and the abstract level. Let me clarify this:

The representational level. All the things we see in our environment or recognize from our experience of an environment constitute the representational level.

*The symbolic level. Man has created a vast world of symbols. It consists of signs, sounds, and body language. He has arbitrarily attached meaning *to them.

*The abstract level. This level represents the image reduced to its visual components like shape, line, tone, colour, etc. This reduction reveals the underlying arrangement of the pictorial elements. *The composition organizes and controls the emotional and kinesthetic qualities, also called the visual forces of the image. The design of the picture conveys its essential meaning.

*We can divide images broadly into three main categories which are determined by the level that dominates:

In the representational category, the viewer receives information mainly from the first level.

*In symbolic images, the meaning is derived from the symbolic level, which contains information from the many symbol systems man has created.

*Abstract images form the third group. Here the first two levels do not carry any information, but stimuli from this level may trigger sensorial responses in the viewer.

Now a few words about each level separately. *Earlier I used the symbol of a tree as an example of how meaning is attached to physical and perceptual shapes. *We learned that the flow of information is controlled by the addition or deletion of graphic detail. *In this manner we can represent every object in generalities *or we can refer to a particular object and show its uniqueness by giving more visual information about it.

*Let us use again the tree as an example to clarify this. All trees have common features, such as branches, leaves, trunks, and roots. *The general category of trees is defined by elemental visual cues. But trees can be individually classified as well. *This ability to distinguish between these separate classes requires knowledge of much finer detail such as leaf design, texture of bark and leaves, and colour. *This knowledge of detail is not only necessary for the image maker but also for the viewer of the picture.

*The artist moves from the stereotype tree to the particular one by supplying the observer with more identifying detail. *The more data is supplied, the more realistic the representation becomes. The artist's decision to give more or less detail *should be determined by the purpose of the intended visual message.

In the painting "Wivenhoe Park, Essex" (Figure 1) John Constable replicated the beauty of the English landscape. *To do this, it is not important to show what type of trees and shrubs were growing there, nor is it necessary to know this in order to appreciate the beauty of the scene.

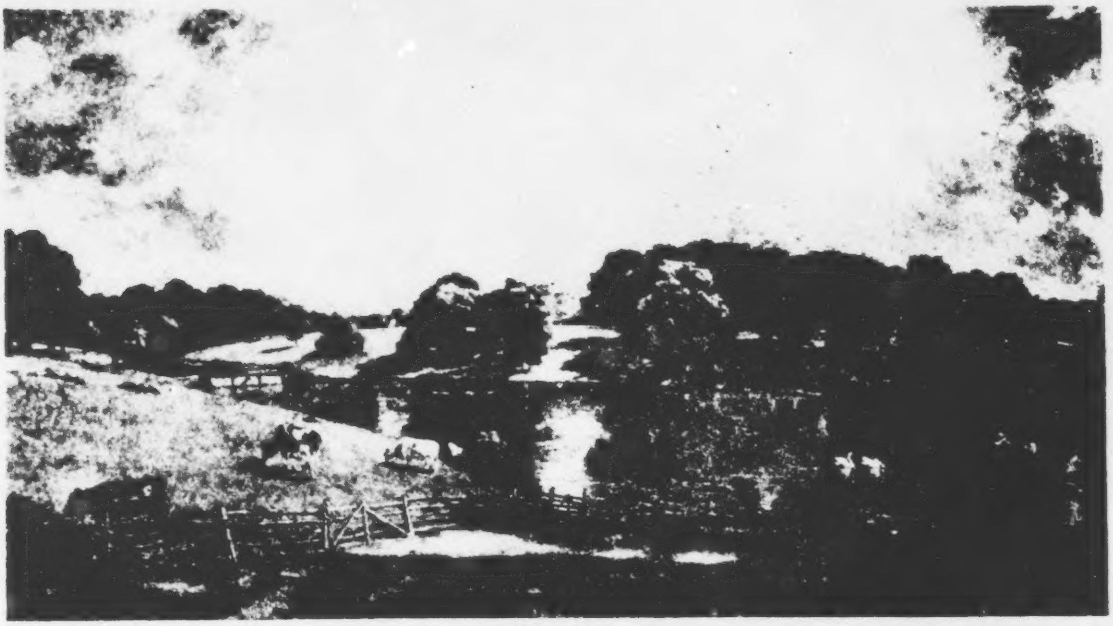


Figure 1. Slide No. 46 - Reproduction: "Wivenhoe Park, Essex" by John Constable

*My photograph "Evening on Lake Kesar" uses elemental visual clues necessary to reflect a pastoral moment in an ever changing environment. *However, when I am commissioned to illustrate a reference book on flowers, I have to provide the client with specific visual information so he can identify a particular flower. *These illustrations are more often than not drawings or paintings rather than photographs. The reason is obvious. *In a painting, the artist can manipulate the subject much better than he could photographically. He may delete all irrelevant and extraneous detail *to bring out the essential and most typical feature of the subject. The image becomes, therefore, clearer and more effective. *On the symbolic level, the visual information is reduced to the minimum. This level shows the most basic features of the represented subject. All symbols are by definition simple and easily reproduced and remembered. *The abstract level of the picture reveals the meaning and purpose of the picture in the arrangement of its basic visual elements.

*To clarify this, let us look at Breughel's painting "The Unfaithful Shepherd." The meaning of the picture is expressed by the way Breughel arranged the pictorial elements on the canvas. *We all know the story of the shepherd who abandoned his sheep. This is expressed by the opposing directions in which the shepherd and the sheep flee. *When we draw lines along the staff, the right leg, the line of the road and along his gaze toward the fleeing sheep (Figure 2), *we have formed a protruding rectangle which enhances the receding and advancing visual forces. *The abstract level shows here how the arrangement/composition of the visual elements enforces the meaning of the painting.

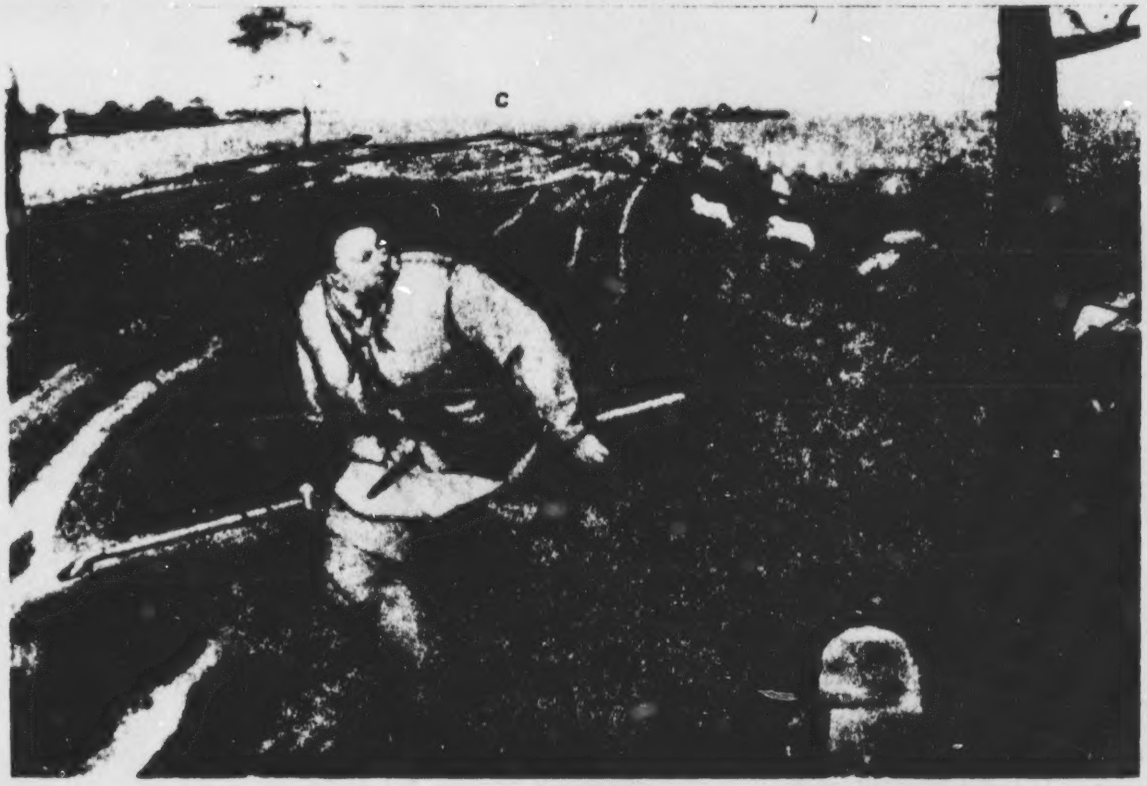


Figure 2. Slide No. 57 - Understructure "The Unfaithful Shepherd"
Pde. Breughel de Elder

*Pure abstraction is achieved by omission of all representational and symbolic data. The picture does not show any familiar visual information from the environment. *We can reveal the abstract level of a visual image by looking only at the shapes, lines, tones or colours which are arranged in the picture plane. *This way we see how a picture is organized and balanced.

*Image making is in itself a process of abstraction because the artist, by replicating a subject, will always modify it by highlighting some of its qualities as he sees it. *The English painter Turner--in his later work--broke with the bands of tradition. In these abstract paintings he did not use colour and light to define objects but to portray the splendor of natural light.

*Looking at abstract paintings, one must realize that the process of abstraction is not simply the deletion of some visual cues from a picture. *It is an omission of detail that results in a more tense and refined meaning. *Samuel Johnson defined the result of an abstraction as "a smaller quantity containing the virtue of power of a greater."

*The representational and symbolic level make up the content of the picture. The abstract level constitutes the form of the picture. This observation can be transformed into the following equation:

*FORM + CONTENT = VISUAL IMAGE (MESSAGE)

The form is the design or the composition of the picture and the content is the subject matter of the picture. Ben Shahn expressed this relationship in words by saying, *"Form is the visible shape of content."

*What is the difference between form and shape? *Let us look at an airplane. The shape of a plane informs us about its qualities, such as size, make, type of propulsion, its landing gear, and so forth. *Its form refers to a large category of things that can fly. *Thus shapes serve to inform us about the nature of things through their external (physical) appearance and forms refer to whole kinds of objects. *We know that a shape can never be separated from what it stands for. When a car loses its wheels it cannot drive. The visible shape of a car becomes the form of that car. *More simply said, forms explain objects and objects explain forms.

*From our examples we see that forms always show the function of things by revealing in their shape such visual qualities as roundness, *sharpness, strength, and softness. *We can conclude that forms portray--symbolically--characteristics of the human conditions, by means of their visual qualities. *We speak of soft and hard lines, of sensual shapes, of warm and cold colours, of smooth and rough textures.

*The ascription of human qualities to visual elements and forms is called perceptual symbolism. *We speak of isomorphic symbolism when the structural characteristics of a visual form are spontaneously related to similar characteristics in human behaviour. *Isomorphic and perceptual symbolism play a key role in the visual language because *the deepest or most essential meaning of the image is conveyed through them.

*Two reproductions of Picasso's drawings exemplify this point quite well. The form of the drawing "Girl with a Necklace" expresses the content. The soft flowing lines with sensual qualities and harmonious juxtapositions compliment the content. *In contrast the study for "Guernica" shows us harsh lines, contrasting irregular shapes and tonal contrast. Such elements are associated with hatred, anger and human suffering. *These feelings are forcefully expressed in the face of the weeping woman. *Certainly "Guernica" would not have the same impact if the artist had used soft flowing lines in a harmonious arrangement!

*An image in which the form does not follow the content becomes ambiguous, its message unclear. *In the painting "Breaking Home Ties" (Figure 3) by Thomas Hovenden, form and content are not reinforcing each other. The title of the work informs us what is supposed to take place. But we are puzzled by the arrangement and the expression of the characters. *The pictorial elements are all disconnected and each one is fighting for attention. The visual statement is confused. *Is the fellow leaving or arriving? The faces are without expression. *There seems to be an affinity between the family members. Thus the composition does not symbolize the content.

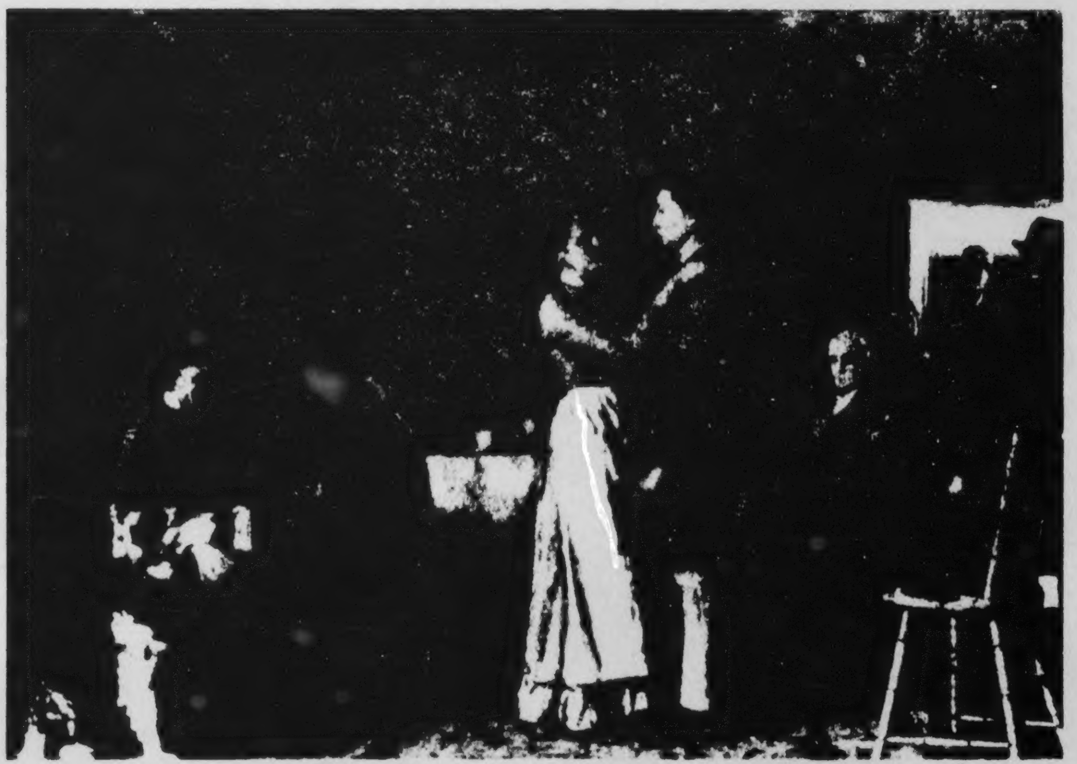
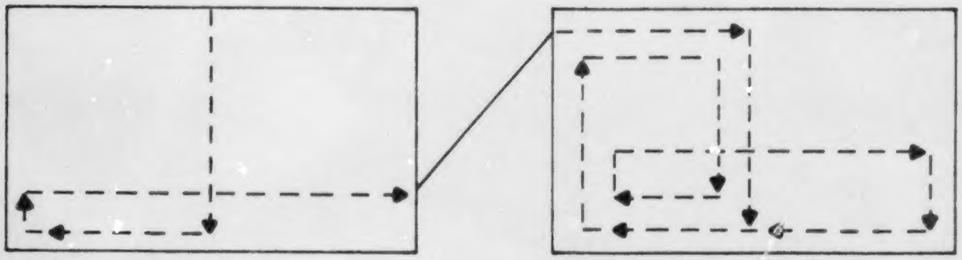


Figure 3. Slide No. 91 - Reproduction: "Breaking Home Ties"
T. Hovenden

*Some areas in a picture plan are more visually dominant than others. *This preference is established through a combination of the primary and secondary scanning pattern. They refer to the way we scan visual material. (Figure 4) The primary scanning is a universal one. It is the visual interpretation of our stabilization process. It responds to the horizontal and vertical referents. The second one is culturally established. In our society we learn to read from top left to bottom right. Consequently, the left lower half of an image has acquired visual dominance. *When the main motif is placed in this location of the picture plane, we



Primary Scanning Pattern

Secondary Scanning Pattern

Figure 4. Visual Scanning Patterns

say that the pictorial elements are arranged according to our visual norm. *As a result there is minimum tension and contrast in the organization of the elements. We call such images 'leveled', a term borrowed from the vocabulary of the psychologists.

*By moving the main motif away from the left lower half we deviate from the visual norm. By doing so we create more tension. *When we place the main subject in the top right half, we have created maximum tension. These compositions are called "sharpened." *Such images are dynamic and have great visual power. This process of leveling or sharpening a composition is a powerful tool in image making.

*We can establish four guidelines for image making which will make the pictures visually very attractive.

First Guideline

Every image should be organized (arranged) according to the four basic principles of composition. The four basic principles are:

1. The composition should have a high degree of unity and balance.
2. The pictorial elements should be arranged according to the laws of simplicity and of similarity.
3. A clear distinction between figure and ground will reduce ambiguity.
4. The composition should reinforce the content and thus intensify the meaning of the image.

(Time does not allow me detailed discussion of these principles in this presentation. *A previous presentation covered the nature of composition and its function in picture making and reading.)

Second Guideline

For effective communication, the primary subject (main motif) should occupy a disproportionately large or visually significant area of the picture plan. *Goya's painting "War" shows war as a giant looming over a crowd of terrified people. The giant dominates the picture plan. Goya deviated from the visual norm to emphasize the evils of war and the helplessness of man. *Violence and hate seen as a threatening and devouring force can thus be visualized by dissimilar proportion of shape as well as by dominance of the image plan. *Love with its reciprocal nature of giving and receiving can be depicted by shapes of similar proportions.

Third Guideline

The selection of a visual technique should be determined by the intent and purpose of the picture.

*The strongest technique in image making is the use of contrast with which we create variety through contrast of tone, colour, shape, etc. *Contrast is the vital force in life, because the mind, the eye, the whole human body demands stimulation to avoid boredom, apathy, and atrophy. *The image-making techniques can be divided into two major groups: a) the stable and harmonious group in which the pictorial elements are symmetrically arranged, and b) the asymmetrically organized group in which pictures are varied and dynamic. *These two techniques form the basis for every visual technique possible because they represent the two main opposing forces in the universe, those of balance and action, of stability and change.

*In the asymmetrically composed picture, contrast and tension are created through opposites. *When we want to show something large, we juxtapose it with something small and of known dimensions. We emphasize the tallness of the columns by using a smaller object as contrast. *We force the observer to see distance by contrasting it with proximity. We are strengthening the meaning of the picture by intensifying distance with nearness, because all meaning exists only in the context of opposites. *We experience a loss of meaning readily when we see our holiday pictures of majestic mountains. They look too small and distant, so unimpressive.

*Bill Brandt's photograph "The Coal Searcher" (Figure 5) is an example of polarity of tone. It is applied to delete irrelevant detail to emphasize the essential. The technique is known as the chiaroscuro technique--the light-dark technique.

*The cold-warm colour contrast ranks second to the light-dark contrast in expressive qualities.

*The art of image making is subjected to a much greater variety of visual techniques than the ones I just mentioned. *Contrast and tension can be created in degrees. *We do this through emphasizing or reducing differences between opposites. *These techniques offer many ways to express human experiences and conditions. *So can excitement be expressed by fragmentation, wealth and luxury by roundness, and *repose by horizontality.

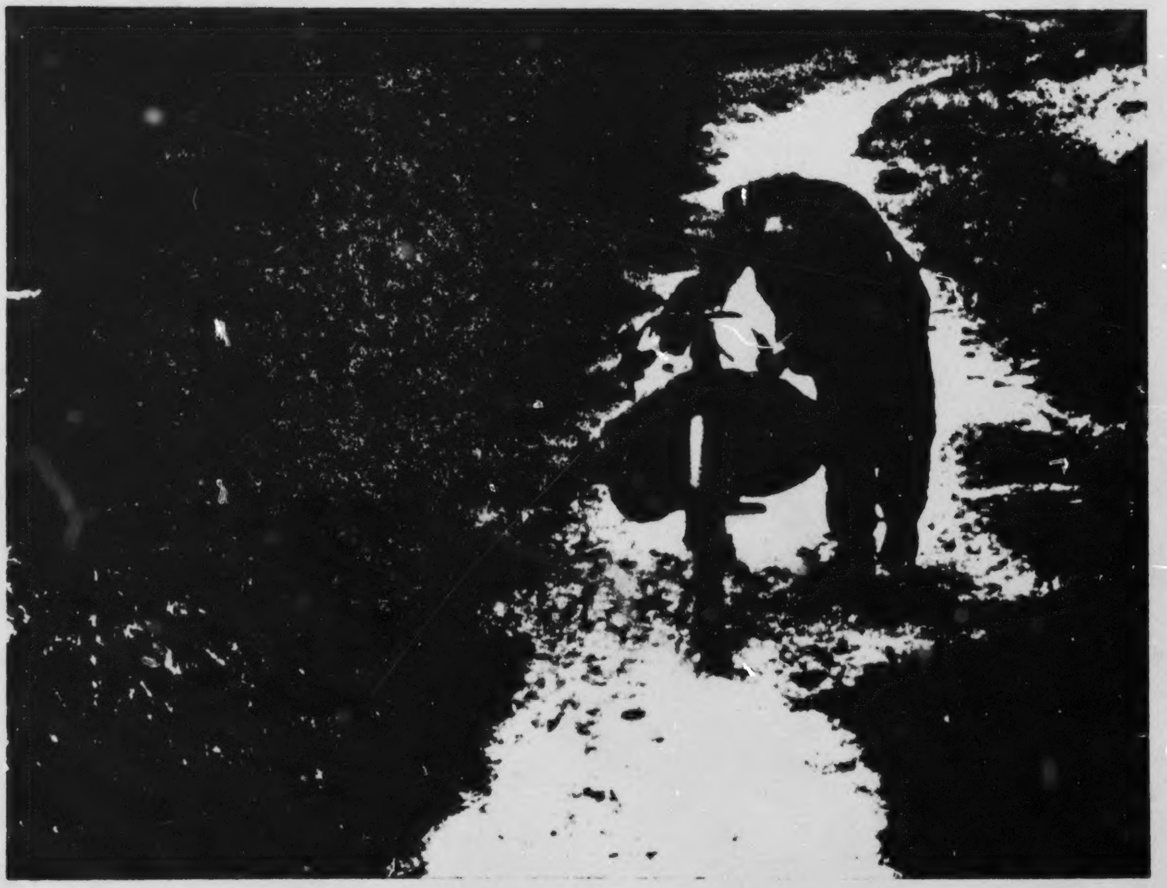


Figure 5. Slide No. 128 - "The Coal Searcher" by B. Brandt

Here follow a few examples of contrasting visual techniques:

*Regularity is the preference for uniformity of elements. This technique is based on the principle of continuity of some sort. It creates predictability and uses frequent repetition of elements and patterns. Its opposite is *Irregularity, which as a visual technique stresses the unusual and the unexpected.

*The technique of realism is based on the representation of the same visual clues as the eye transmits to our brain. It is the natural technique of the camera. This photographic effect of realism is called "trompe d'oeil" or "trick on the eye". *Distortion plays with realism, creating visual impact by deviating from familiar shape, scale, size or perspective. It produces strong response when it is used intelligently.

It is impossible to discuss or show all the available visual techniques. *Some of them are as old as the history of image making. Over the centuries, *artists added new techniques for visual representation through experimenting with new material and conventions to their repertoire. *We must bear in mind that every visual technique is based on the process of leveling and sharpening, or differently said, by increasing or decreasing contrast. Because of this we are able to control the visual impact of a picture. *The term visual impact refers to the visual power of an image to attract instant attention.

Fourth Guideline

**Every image should meet the four conditions required for visual impact.* These four conditions are:

*1. The selection of the subject. Everybody has his likes and dislikes when looking at pictures. Images of children, *animals, and *nature scene pictures are liked by most people.

*2. The compositional qualities. As we have seen, good compositional qualities are a necessity for effective communication.

*3. The choice of inward illumination. The term refers to the tonal distribution in the picture.

*4. The quality of the visual presentation of the picture. This covers the technical and aesthetical qualities of the print as well as its presentation.

Picture Reading

*Looking at a picture is a process of interaction between the artist and the viewer. The observer begins where the image maker stopped. *We know that the meaning of an image lies not only in the creative and suggestive skill of the artist, but also in the eye of the beholder. *Sir Combrich, the well known art historian, writes: "The beholder's share in the reading of an image is his capacity to collaborate with the artist and to transform a piece of colored canvas into the likeness of the visible world."* *In order to do this the observer needs a receptive attitude and he has to develop the ability to read (perceive) and understand the picture.

*Let me use an analogy. Nobody expects to comprehend and will be interested in all the books of a library. *Why then should we expect to enjoy and understand every picture we look at? *The pleasure and satisfaction we may get when we look at a picture is called an aesthetic experience. It is the result, or should we say the reward, of the interaction between the viewer and the image. *The word 'satisfaction' can be defined indirectly as the state of mind which is indicated by the willingness to prolong or repeat the experience in question. In his book The Visual Dialogue, *Nathan Kobler defines aesthetic satisfaction as a result of a complete combination of perceptual abilities and subjective attitude.

*The conditions required to respond to a sunset are minimal indeed! There are not many people who would not look with satisfaction at such a picture. *But can we say the same about people's reaction to this image? The viewer has to be able to perceive and understand the image in order to appreciate it! *The silhouetted figure of the cello player, filled with stars, represents the universe. The sphere symbolizes the world. The warm colour of the cello symbolizes the power of music to influence and unite people. *This ability to arouse feelings in the observer and listener alike is termed 'empathy'. *Empathy is the imaginative ascription to a natural object or work of art of feelings and attitudes present in oneself. It is what we feel inside ourselves *when we listen to music, look at a work of art or enjoy nature. *Our perception is coloured by a cultural filter. We know that our many prejudices are the result of our conditioning. As we have seen, some of our biases are subject matter oriented.

Some pictures are enjoyed by everybody, *but many people are not able to appreciate such things as horrid images of human suffering. There are people who enjoy conceptual images *and others prefer perceptual pictures. *In contemporary art, many artists de-emphasize subject matter in favour of form. *The prime condition for appreciating pictures is the willingness to look at all imagery--*historical or contemporary--without prejudice. *We should defer judgment until our evaluation is based on an understanding of what we look at and of what we really perceive.

*Our appreciation of images is historically associated with beauty. *The American Heritage Dictionary defines beauty as "a pleasing quality associated with harmony of form, colour, excellence of craftsmanship, truthfulness, originality or other often unspecifiable properties." *There are two concepts about the meaning of beauty. According to one concept, the meaning of beauty lies in the emotional response of the beholder, in his reaction to the stimuli of the subject. The feeling of satisfaction which the viewer experiences is triggered by the subject, but it is not part of the subject.* *The second concept sees beauty as the inherent quality of the subject. It is the form, the relationship of the individual parts that the beholder regards as beautiful! *This concept represents the artist's viewpoint--the belief that beauty is the result of a controlled relationship between the pictorial elements. *From our experience we know that the response is a personal and subjective one. *But we learned that it requires an initial stimulus in order to trigger this response.

Modern psychology gives a broader interpretation of the reaction to these visual stimuli. Today's view is* that any response to a picture can be regarded as an emphatic response as long as it is based on understanding and knowledge and not on the viewer's inadequacies or biases. *The aesthetic response may include all human responses which are opposite of what is generally expressed by beauty. We shall realize that the image maker's concern cannot and may not be solely with beauty. *The humane pictures of Dorothea Lange or the moving photographs by Smith* of human suffering caused by mercury poisoning of the food chain are good examples. *To demand that all images must always be beautiful would be incorrect. *It would deprive the visual language of the power to communicate all human experiences.

VISUAL LITERACY, CREATIVE THINKING AND THE RIGHT HEMISPHERE OF THE BRAIN

by
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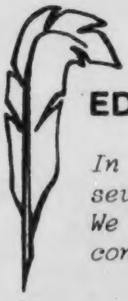
Introduction

Good Morning! I wish to begin by answering the basic questions of what we will be covering this morning during the course of this session:

1. What?
    - we will determine just what is VISUAL LITERACY
    - we will explore the concept of CREATIVITY
    - we will address the new studies relating to the hemispheres of the BRAIN
2. Why?
    - there is a need to further develop potential
    - we must locate the untapped brain power
    - the motivation of today's student is poor

Let us begin by BRAINSTORMING. Remember, the rules for a brainstorm are stringent. It is not merely a conversation. It is the throwing out before the group of ideas at a very rapid, flowing pace; using only words or phrases rather than sentences; and calls upon all to build on ideas given by others.

In addition to the ideas you have just enumerated may I add that Visual Literacy consciously addresses itself to the use of stereotypes. Be certain to see the film Killing Me Softly which deals with female stereotypes.



EDITORS' NOTE:

In this workshop, Kugelman involved her audience in several brainstorming and visualization activities. We present here only the script which was used to connect the various forms of group participation.

Creativity

There is a technique called In/Out Listening developed by Synectics, Inc. which is a method by which to tap into the right hemisphere of the brain. Allow me to explain. When you take notes at a meeting, divide your paper with a column on the right wherein you doodle, write or draw whatever comes into your mind as the meeting goes on and as you do your standard note taking on the left side of the paper. Practice it as we go alone. I believe you will find it a surprising way to free up your creative thinking. More about that later.

Now, just what is creativity? Creativity is:

- balance
- applied ideas
- openness
- growing
- reading of symbols
- looking at the whole picture first
- seeing relationships
- all of the items we have just listed in our brainstorm for visual literacy are also a part of creative thinking

Now let us practice our own creative thinking for a while. Using the lovely picture book, Attic of the Wind with text by Doris Herold Lund and illustrations by Ati Forberg, written back in 1966, I will read while you make imagery in your mind. This is a guided fantasy and requires that you relax and close your eyes.

You have been using both your right and left brain. You were required to left brain process as you heard my voice reading, then you used right brain actions to either recall and set into this context or originate imagery. May I suggest that later on this evening you sit down and write on the back of your paper your impressions of the guided fantasy. There you will have come full circle and will be back to left brain action.

What is the creative individual like? Some of the traits are:

- inventiveness
- searching
- daring
- self-expression
- disturbing status quo
- upsetting
- opens new possibilities
- fluidity
- flexibility
- varied points-of-view

You may find the creative person difficult to work with!

I have some brilliant examples of creativity and use of symbolism in children's picture books.

Aldredge, Alan and Plomer, William. The Butterfly Ball and the Grasshopper's Feast. N.Y.: Grossman Publishers, 1975.
Carle, Eric. I See a Song. N.Y.: Thomas Y. Crowell Company, 1973.
Edens, Cooper. If You're Afraid of the Dark Remember the Night Rainbow. LaJolla, Ca.: The Green Tiger Press, 1979.
Lund, Doris Herold. Attic of the Wind. N.Y.: Parents' Magazine Press, 1966.
McDermott, Beverly Brodsky. The Crystal Apple. N.Y.: The Viking Press, 1974.
Mahy, Margaret. A Lion in the Meadow. N.Y.: Franklin Watts, Inc., 1969.
Merriam, Eve. Finding a Poem. N.Y.: Atheneum, 1970.
Montresor, Beni. Bedtime! N.Y.: Harper and Row, 1978.
Pavey, Peter. One Dragon's Dream. N.Y.: Bradbury Press, 1978.
Provensen, A. and M. Play on Words. N.Y.: Random House, 1972.
Scheer, Julian and Bileck, Marvin. Rain Makes Applesauce. N.Y.: Holiday House, 1964.
Sendak, Maurice. Where the Wild Things Are. N.Y.: Harper and Row, 1963.

The Two Hemispheres of the Brain

It has only been very recently that we have been able to study the human brain. Animal studies were done; however, not until 1968 were in-depth human studies attempted. It was almost accidental as to the discovery of two different processes taking place in the brain. At that time, the "split-brain" studies research was carried out at Cal Tech by Roger W. Sperry and others. A small group of epileptic seizure patients had the corpus callosum of the brain severed by surgery done by Phillip Vogel and Joseph Bogen, thus isolating the hemispheres. Seizures were controlled, but testing showed a change in the functioning mechanisms of the brain. It was learned that each hemisphere perceives reality in its own way. The verbal half (left brain) tends to dominate most of the time. The right brain is nonspeaking, but does respond with feelings and visual perceptions. The corpus callosum functions as the pathway of communication between the halves, reconciles the two realities and preserves a unified person.

Allow me to list the various functions of each hemisphere:

LEFT	RIGHT	LEFT	RIGHT
verbal	nonverbal	abstract	concrete
analytical	global	directed	free
deliberate	rapid	propositional	imaginative
simplified steps	complex	analytic	relational
the particular	whole-patterned	lineal	nonlineal
takes apart	puts together	rational	intuitive
intellect	intuition	sequential	multiple
convergent	divergent	analytic	holistic
digital	analogic	objective	subjective
secondary	primary	successive	simultaneous

Mathemetician Henri Poincaré gives us insight:

"One evening, contrary to my custom, I drank black coffee and could not sleep. Ideas rose in crowds; I felt them collide until pairs interlocked, so to speak, making a stable combination. It seems, in such cases, that one is present at his own unconscious work, made partially perceptible to the over-excited consciousness, yet without having changed its nature. Then we vaguely comprehend what distinguishes the two mechanisms or, if you wish, the working methods of the two egos."

Exercises

I have some exercises (some of which I have adapted) as suggested by Betty Edwards in her wonderful book Drawing on the Right Side of the Brain (N.Y.: St. Martin's Press, 1979). By the way, another excellent book is Tony Buzan's Use Both Sides of Your Brain (N.Y.: E.P. Dutton and Co., 1976). His method of organic note-taking is fascinating.

1. Write your signature, turn it upside-down, trade with someone you do not know, see if you can read it? Do you feel frustrated? Do you notice a different brain processing mechanism in action?
2. Try reading print upside-down.
3. Try looking at pictures upside-down.
4. Attempt to copy from an upside-down picture ... then try to copy it right-side-up while viewing it upside-down.
5. Imagine the left side of your brain controlling the right side of your body. Now do so in color.
6. Imagine the right side of your brain controlling the left side of your body. Now do so in a different color.
7. Imagine both sides of your brain and the corpus callosum connecting them.
8. Try to describe a spiral staircase without making a spiral gesture.

Conclusion

May I close by presenting a challenge. Let us learn to consciously control mental shifts by development of our own Self-Monitor (or Observer) which works at the Balance Point between the two brains encouraging the action and interaction of both.

All of this goes largely untaught in the schools. Let us work for courses which will teach teachers and children:

- to visualize
- to be imaginative
- to gain spatial perception
- to create
- to be inventive
- to be wholly balanced

I believe that one argument we can use to shake loose the school's lethargy is that we need visualization skills for use in analytical, logical thinking and that imaging ability will help students to perform mathematics, reading, and writing at a more perceptive level.

ANCIENT, ELECTRIC, ELECTRONIC SHADOW THEATER AS VEHICLES IN SUPPORT OF VISUAL EDUCATION

by

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For more than a thousand years the shadow puppet theater, found throughout Asia, has helped convey the heritage of cultural expression, information and religion of significance to millions of people captivated by its appealing glow. Carved leather figures animated by dalangs (puppeteers) on a lighted screen accompanied by the rippling music of a gamelan (orchestra) were perhaps as intriguing to educators and communicators of yesterday as the flickering images of television are today for directing attention and attracting interest to visual expression and experience for the purpose of education.

Three approaches to manipulating light, color, sound, and energy in order to communicate--namely performance of shadow theater in the ancient tradition; presentation of choreographed multiple overhead projections; and television production--can be considered in the teaching of visual skills and sensibilities. Any one of these approaches can be used effectively as a tool on its own or they can be used together in various combinations.

This workshop/performance support paper gives an overview of the workshop and highlights selected subject matter covered concerning the use of ancient, electric, and electronic media within the visual education field.

Workshop Objectives

The workshop has been designed to be a general overview of the topic providing opportunities for participants to:

1. be introduced to the art of Javanese shadow puppet theater as presented on the shadow screen and through videotape playback;

2. explore and share tips and techniques for using overhead projection animation;

3. consider the use of shadow puppet theater of various types as a means of studying viewer perception and interpretation of highly intensive visual displays;

4. consider some factors arising from research and experimentation concerning how people interpret and learn from visual experience;

5. share and discuss techniques for using television in teaching visual competencies and appreciation;

6. view and discuss samples of videotapes of shadow theater; televised overhead projection animation; and TV Ontario programs which can be integrated as a part of visual education curriculum at various levels.

Ancient Shadow Theater

The artifacts and performances of Asian shadow theater are rich resources for study. The fine design and craftsmanship of each shadow figure; high fans representing forests, buildings or the Tree of Life; the fast-moving lighted shadows of the puppets; the environment in which the legends, news, and opinions are shared can all be used as novel entry experiences especially for those who are unaware of the heritage of Javanese Wayang, Balanese, Chinese, and/or other types of shadow theater.

A professionally performed program viewed in context as suggested by a teacher or facilitator can foster awareness and understanding of visual conventions and symbols. A teacher can provide frameworks to aid interpretation and focus, building from identification of pure representation of objects, people, and visible actions to understanding the simultaneous existence of abstract visual expression.

Comparison of live performance to videotape recordings might also be explored. Shadow theater can be considered as a pre-form of television. Its original non-electric presentation as well as electrically lighted modern presentations are subjects for exploration of the impact of the imagery in motion on viewers in relation to television and its visual impact.

Follow-up suggestions include:

- Contacts for performance information
    - The Shadow Puppet Theater of Java: An Introduction to an Ancient Art by Mary Alexander and Alice Hume c/o The Puppet House Players, Inc., P.O. Box 696, Frankfort, Kentucky 40602
    - Betty Polus, Shadow Theater Consultant, 132 A Albion Street, San Francisco, California 94110.
- Reading/Picture Resources
    - James Brandon and Pandam Guritno. On Thrones of Gold. Cambridge, Mass.: Harvard University Press, 1970.

- J. Francis Crothers. The Puppeteer's Library Guide. Vol. 1, Metuchan, New Jersey: Scarecrow Press, 1971.

- Michael R. Malkin. Traditional and Folk Puppets of the World. New York: A. S. Barnes and Company, 1977.

Overhead Projection Technique

Hands-on experimentation is the best approach for teachers to take in learning how to make effective use of two or more overhead projectors operated in synchronization as visual education vehicles.

Rear screen projection is the most effective way of displaying choreographed presentations to an audience. Material such as a plain white shower curtain can be stretched on a frame to provide a screen if commercially made screens are not available.

Used in a classroom situation, four to six children can take turns in operating the overheads to produce a television or film-like display, if desired. A simple coat hanger can be formed into a colored gel holder and attached to the projector lens casing. Dissolve cards can be cut to size and moved into and out of the holder space to allow for transitions between overhead projectors. A variety of textured and translucent materials can be used in between the lens and the glass plate of the overhead to obtain effects.

Clear acetate can be drawn upon by children for projection and integration into a motion filled composition. India ink mixed with a drop of liquid detergent can be used to draw figures. Bodies and movable parts can be constructed. Thermofax machine plates or contact plastic color lifts (self-adhesive clear contact plastic such as MacTac) can be used.

Wide-angle lenses are the most effective lenses to use. Operators can place and manipulate figures, objects, etc. on the regular overhead glass display area; within the space between the plate and the lens; within the space in front of the lens toward the screen; directly on the screen; or if puppets or three-dimensional objects are used, in front of or behind the screen.

A good starting activity in using the overheads is to experiment with movement to various kinds of music. If children are to operate the overheads in this fashion for any length of time, it is recommended that sunglasses be worn.

Direct involvement in creating the visual conventions and movements of television such as the dissolve, the cut, the long shot, the close-up, the de-focus, can easily be worked into critical television viewing curriculum.

Multiple overhead projection technique can also be used to achieve animated content for small format (portapak) television production as a part of classroom activity. (The approach can also be used in broadcast quality production.) Tips for those using shadow puppetry with overhead on television for the first time include:

- use a translucent rear-screen (the overheads should not be seen by the cameras) which will prevent the lights from creating a "hot-spot".
- use overhead projectors with wide-angle lenses which can be tilted forward and backward.
- puppet movement on the overhead should be carefully planned using small controlled movements for the most part connected as appropriate to your own breathing.
- be aware that dialogue between shadow figures can be quite boring. The use of a narrator is often best. Operators should concentrate on movement of their props, figures, and scenery.
- keep everything as simple and as organized as possible.

References recommended include:

- Janibeth Johnson, Shadow Puppetry on the Overhead Projector (manuscript privately published), 1978. (Available through the Puppeteers of America, Inc. Bookstore, 14316 Sturtevant Road, Silver Spring, MD 20904.)
- Betty Polus, Shadow Puppet Know-How (manuscript privately published), 1978. (Available through the Puppeteers of America, Inc.)
- Herta Schonewolf, Play with Light and Shadow: The Art and Techniques of Shadow Theatre. New York: Reinhold Book Corporation, 1968.

Research through Shadow Theater

Shadow theater, dominated by full color or black-and-white imagery, is a useful medium for research concerning visual literacy.

An interesting project funded by the Canada Council through its Explorations program in 1976 was carried out by FPT, Inc. (Frog Print Puppet Theatre of Toronto). The project set out to develop and evaluate the use of shadow theater using overhead projectors. An experimental "responsive evaluation" technique was developed as a part of the project by G. Harry McLaughlin, Ph.D. and registered psychologist, for use in exploring the impact of shadow theater performance on audiences.

R. Tilroe and G. Harry McLaughlin developed an approach to identifying ways audience members describe their perception of selected shadow theater experiences. An evaluation based on verbal responses of participants was devised in order to reveal the extent to which audience members agree with each other and with the producers as to the connotation of image clusters. An attempt was made to undertake the study without using elaborate technology or expensive research methodology.

Immediately following selected performance units the entire audience was invited from the stage to respond. A highly directional microphone was used to audiotape the responses. Further recording of response was carried out later in the evening and at other times.

Analysis of the carefully phrased open-ended questions suggested that most respondents with post secondary education enjoyed the performance but had difficulty in internalizing and reflecting upon the flood of visual display and narrative immediately after seeing and hearing it. None of the respondents had recalled seeing anything like what they had just seen, although some references were made to film or television programming. The immediate response was described in affective terms and dealt with aesthetic content.

It was found that after an hour or longer respondents were more likely to describe cognitive interpretations of what they had seen. A tentative conclusion of the study was that time for mental processing was required if all the highly intensive visual and aural components presented in harmony into a focused aesthetic mosaic were to be integrated, assigned meaning and articulated verbally.

Questioning of additional audiences suggested that younger children as well as adults were enchanted by the succession of rich live visual images even if they could not verbalize immediate symbolic or abstract interpretation.

The manner in which shadow theater as performed in this project used moving backgrounds, sound effects, music, intensive color flashes, and dramatic narrative by a visible female actress to counterpoint the actions of puppets and animated objects in a "live" audience setting, most likely makes the medium inherently highly demanding for members of the audience. The cognitive load factor contained within the presentation may well be a key indicator in predicting the overall effect in conveying specific messages for audiences whose level of cognitive functioning could be estimated in an educational setting.

A methodology for discovering what the optimum degree of cognitive load is for various audiences and what techniques and mental "holding" or memory functions will assist learners in "reading," assimilating, and comprehending multi-media experiences would seem to be open for further investigation.

Selected Findings on Visual "Thinking" and Knowing

Conclusions based on the FPT, Inc. shadow theater project findings suggest that:

- electric shadow theater can be highly demanding and can easily overlaod viewers. Many viewers stated that more time was needed to think about and discuss what they had seen.

- there seems to be considerable diversity among audience members regarding impressions retained and to which commonly held meaning is assigned.

- there seem to be distinctly different rates and manners of perception.

- visual presentation seems capable of overpowering aural presentation.

Research findings in the disciplines of biocybernetics, system and information theory, neuro- and psycho-physiology shed light on how perception and learning take place within the human brain.

A report by Dr. Miroslav F. Malik of Concordia University presented at Memorial University in Newfoundland, 1981, leads to conclusions which suggest that:

- the time the brain requires to process visual input varies from under a minute to an hour depending upon the individual and environmental influences.

- verbalization of concepts and the thought process are distinctly different neurophysical events.

- the scanning by one's eyes of a television sequence does not indicate that cognitive understanding is occurring.

- the act of seeing (information coming into the brain from outside the brain) is a different mental process than the act of intrinsic imaging.

- images received decay as they are processed by the brain. Up to 90% of the signal available is blocked or fragmented by attention of the mind to metabolic activity, feedback and verbalization, memory searches, imaging, stress, and other brain activity.

- residua, remembered visual fragments, can be reconstructed through mental imaging. The images and action recalled or reconstructed do not necessarily replicate the original stimula.

Findings such as these can be applied to teaching and to the creation of learning materials and situations. Considerations such as pacing, planning time to allow for mental processing, making learners aware of how seeing and knowing take place should be taken into account by all those who are involved in educating.

References recommended include:

- Research papers by Dr. Miroslav F. Malik of Concordia University, Montreal, Quebec, Canada. (These are available through libraries with access to ERIC services in the United States of America.)

- Research and project reports related to the use of television in teaching reading (Readalong, the Video-reader) and other educational applications of television (i.e., Camp TVO, Let's Play TV, Critical TV Viewing) have been prepared by TVOntario. Enquiries should be addressed to TVOntario, Box 200 Station Q, Toronto, Ontario, Canada M4T 2T1.

- Correspondence with FPT, Inc., 449 Lawson Road, West Hill, Ontario, Canada, M1C 2K2.

Television and Visual Education

Samples of programming produced, co-produced or acquired by TVOntario in Toronto, Canada provide an overview of some of the approaches which can be taken in teaching basic visual literacy and in enhancing visual appreciation.

Utilization Strategies

- Pre-recorded programs and program segments are often selected for integration into teaching plans or to serve as resources for independent study. Television serves as a motivator and/or as a source of common visual experience among students which can be evoked after viewing to specific instructional ends.

  Visual sequences are often used without sound or in an interactive analytical manner with appropriate stops and starts. Video-disc technology can enhance the teaching-learning potential for analysis of visual structure and motion.

  Classroom discussion which focuses on students' identification of highlights remembered--a "video memory scan"--can foster discussion and raise awareness of differences and similarities among class members in visual perception and interpretation.

  TVOntario's telecourse Environments: Perception and Creativity and Omnibus Art's Kit are formal and nonformal models for teaching visual arts appreciation on an adult level.

- If videotaping equipment is available, a variety of recording, playback, and follow-up activities can serve as major learning resources.

  TVOntario's The Third Eye and Behind the Third Eye booklets written for teachers cover classroom uses of portapaks on the elementary and secondary levels.

Activities such as pantomime, student mirroring exercises, use of shadow theater, making a visual catalog of feelings, capturing everyday conflicts, use of puppetry, provide subject matter and follow-up experience examples which teachers can build upon.

Program samples for consideration include:

- Programming of value to television/media study

Program/Series Title	Level	Print Material
Ways of Seeing (BBC)	secondary, adult	book
Journey to Kairos (TVO)	secondary, adult	notes
Fast Forward (TVO)	secondary, adult	booklet
Aspects of Cinema (TVO)	secondary, adult	
Adventures in History (TVO)	secondary, adult	
Talking Film (TV)	secondary, adult	

- Programming using televised shadow theater

Tell Me a Story, "Tell Me a Story" (TVO)	elementary
Camp TVO, "Shadows" (TVO)	elementary
"Wesakecha and the Flood" (ACCESS, Alberta)	elementary or adult

- Programming which could be used in Visual Education

Today's Special (TVO)	pre-school, elementary
Math Patrol 2, "Shapes" (TVO)	elementary
Everybody's Children, "Play" (TVO)	secondary, adult
Polychrome: Video Art (TVO)	secondary, adult

General Conclusions

Seeing and knowing through visual experience is just as much a performing art as is music or dance. Just as in music or dance techniques for improving performing skills, receptivity, and expression can be learned. All three of the active visually oriented media (shadow puppet theater, overhead projection animation, and television) considered in this paper and related workshop are unique and powerful resources which should be used in creative ways to assist learners in continuing their skill development and in refining their sensibilities of seeing and of mental imaging.

This paper and related workshop only touch on a few of the opportunities, strategies, and understandings to be considered in pursuing visual education to its fullest.

The sharing of experiences, questioning, and expression of alternatives by participants provide an added dimension to the workshop and help determine the most appropriate details to be probed.

Workshop resource people welcome comments and questions and would be happy to continue interaction through correspondence or through other means.

TOWARD AN UNDERSTANDING OF COLOR

by

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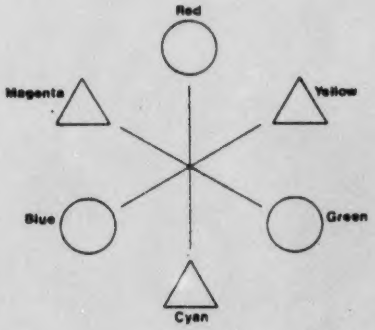
DENNIS W. PETT
Indiana University
Bloomington, Indiana



Color is an important part of our perception and an understanding of color is critical in visual communication. A great deal has been written about color and much of it is confusing. The confusion stems from two factors.

First, naming colors is not as simple as one might think. Many different colors are called by the same name. The same color may be called by different names... the words turquoise, aqua, cyan, and blue-green are sometimes used to describe the same color. Conversely, the word "blue" is used to name colors ranging in hue from a powder blue to deep navy blue. Hue, value, and chroma are the three attributes of color that make up the Munsell system. The definitions for these terms are:

Hue	That quality by which we distinguish one color family from another, as reds from yellows or greens from blues.
Value . . .	That quality by which we distinguish a light color from a dark one.
Chroma . .	That quality by which we distinguish a strong saturated color from a weak, less saturated one.

EDITORS' NOTE:

More than a year went into the preparation of the presentation on color given by Lucille Burbank and Dennis Pett. They first developed the content and shared that information with IVLA members in the October, 1980 VISUAL LITERACY NEWSLETTER. In the year that followed, more than 150 color slides were collected which were used to visualize the subject. Although it is not feasible to reproduce their slides here, the excellent article which was the basis of their presentation is re-printed for those who may have missed it.

Second, there is confusion about how colors are formed. When considering color in relation to media, such as painting, color photography, or television, color sensations are aroused in two ways, additive or subtractive.

Additive Method

In the additive method, color is created as two or more colors are added together to form a new color. Examples are:

- Projecting multiple light sources
- Spinning discs consisting of areas of different colors
- Looking at small dots that fuse together as in a color television set

The additive primary colors are blue, green and red. In additive processes, blue and green will form a bluish green usually called cyan; blue and red form magenta; and red and green form yellow. For example, if red and green lights are projected in superimposition the result is yellow. Similarly, if you look at a yellow area on a color television screen through a magnifying glass you will see it is composed of red and green dots ... or, if you rapidly spin a disc that is half red and half green, the results will be yellow of a low value, i.e., brown.

Subtractive Method

In the subtractive method, colors are formed by mixing two or more colors so that each absorbs some of the light that is reflected or transmitted. Yellow absorbs blue and reflects or transmits red and green, and magenta absorbs green and reflects or transmits red and blue (Fig. 1).

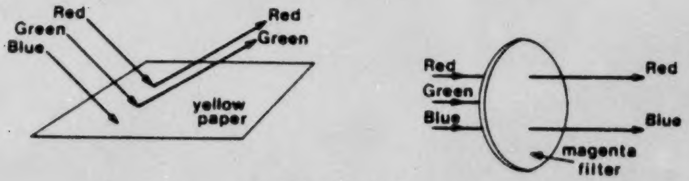


Figure 1

Therefore, a mixture of yellow and magenta pigment or dye absorbs blue and green and reflects or transmits only red. Examples are superimposing dyed images as in color films, mixing paints, or superimposing colored gels on an overhead projector. The subtractive primary colors are yellow, magenta and cyan. These colors are those formed by additive color mixing of red-green, red-blue and blue-green. Visually, this can be shown in a diagram (Fig. 2).

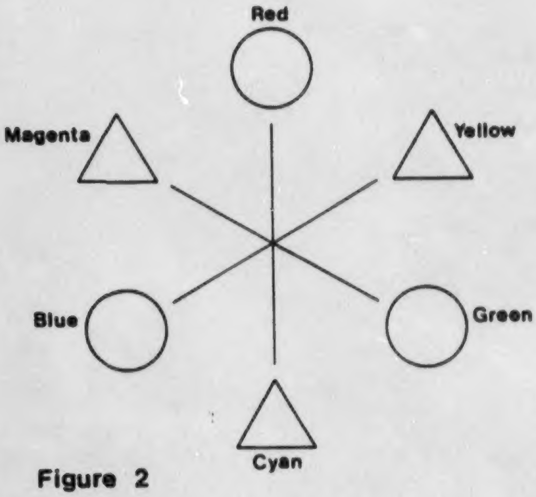


Figure 2

The additive primary colors are represented by circles ... the subtractive primary colors by triangles. The colors opposite each other are known as complements ... blue-yellow ... green-magenta ... and red-cyan. One mnemonic device that is useful in remembering these combinations is:

Red	Cars	BY	General	Motors
red	cyan	blue-yellow	green	magenta

It is important to note that there is not just one particular red, one blue and one green that can be used as additive primaries ... there is not just one particular cyan and one magenta and one yellow that can be used as subtractive primaries. A range of each of these colors might be used, depending on the process and the results desired (Fig. 3)

For example, the additive primary colored dots in a color television screen are different in color than the additive primary filter colors used in color photography (C5 blue, B green, A red), and for some purposes other filters that transmit narrower bands of the spectrum are used in place of the C5, B, and A. Similarly, the cyan, magenta and yellow dyes used in printing color photographs may be different in hue

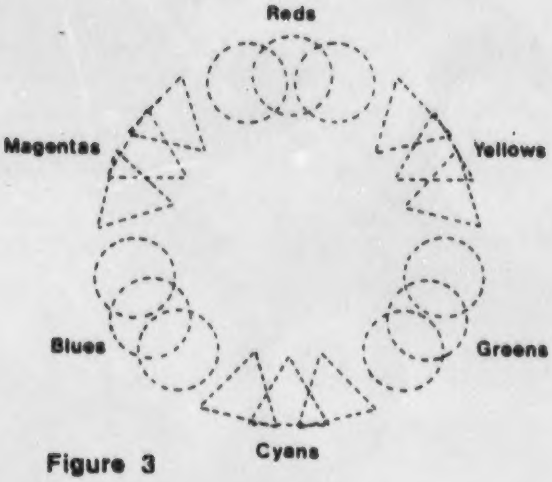

Reds
Yellows
Greens
Cyans
Blues
Magentas

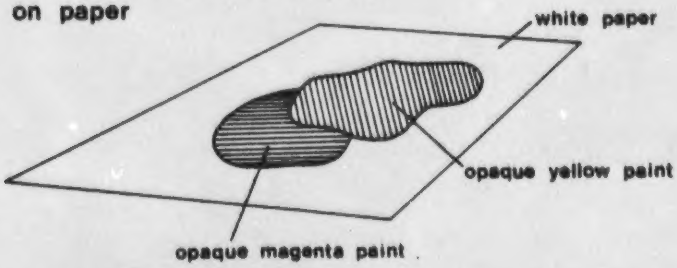
Figure 3

or chroma from the cyan, magenta and yellow paints used for full color silk screen printing. The cyan, magenta and yellow dyes used in Ektachrome film are different from the dyes used in Kodachrome or Fujicolor. Mixing paint is similar to mixing dyes. It is a subtractive process and the primary colors are cyan, magenta and yellow.

Figure 4 (a, b and c) shows the similarity and difference between using transparent and opaque colors.

Figure 4a

Overlapping opaque paints on paper


white paper
opaque yellow paint
opaque magenta paint

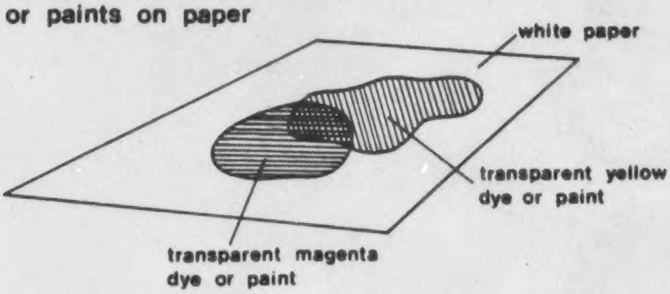
When viewed under white light the area covered by opaque yellow paint will appear yellow because blue light is absorbed and red and green are reflected back.

The area covered by magenta paint will appear magenta because green light is absorbed and red and blue are reflected back.

The overlapped area will appear yellow because the yellow paint covers the magenta paint.

Figure 4b

Overlapping transparent dyes or paints on paper


white paper
transparent yellow dye or paint
transparent magenta dye or paint

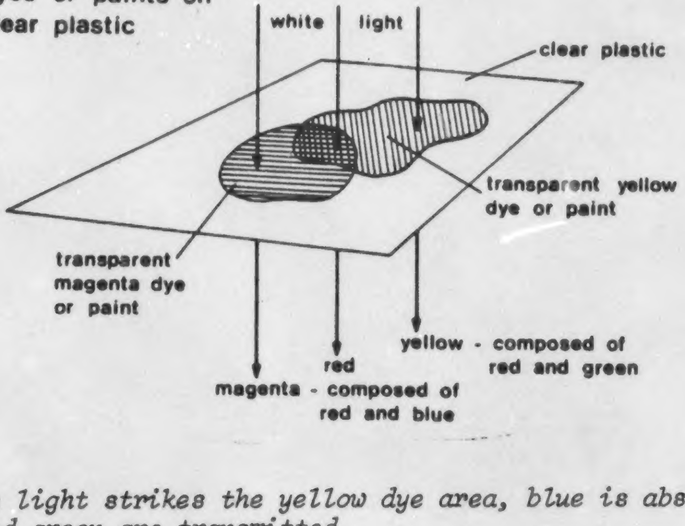
When viewed under white light the area covered by transparent yellow dye or paint will appear yellow because blue light is absorbed by yellow. Red and green are transmitted and reflected back through the dye or paint by the white paper.

The area covered by magenta dye or paint will appear magenta because green light is absorbed. Red and blue are transmitted.

The overlapped area will appear red because blue and green are absorbed and only red is transmitted.

Figure 4c

Overlapping transparent dyes or paints on clear plastic


white light
clear plastic
transparent yellow dye or paint
transparent magenta dye or paint
yellow - composed of red and green
red
magenta - composed of red and blue

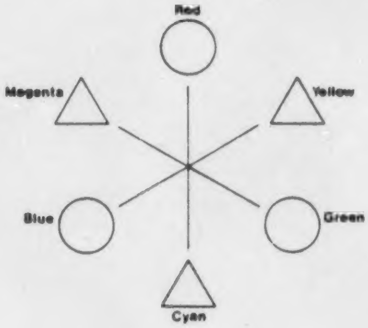
When white light strikes the yellow dye area, blue is absorbed and red and green are transmitted.

When white light strikes the magenta dye area, green is absorbed and red and blue are transmitted.

When white light strikes the overlapped area, blue and green are absorbed and only red is transmitted.

Depending on variables such as the pigment ... paint, ink or dye ... the process, and the paper, there will be variations in the precise hue, value and chroma of the colors used. The colors are often described by different names and subtractive primaries are sometimes called blue, red and yellow ... but the blue used is a greenish blue and the red used is a bluish red. the confusion generated is related to the naming of colors mentioned earlier. An example emphasizes this ... one company labels primary paints CYAN (PROCESS BLUE), MAGENTA (PROCESS RED), and YELLOW.

In summary, there is considerable confusion in color nomenclature and in the two ways of mixing colors--additive and subtractive. The additive primaries are blue, green and red and the subtractive primaries are cyan, magenta and yellow. These names do not indicate specific colors, but rather a range of possible colors depending on the characteristics of specific processes.



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Visual Literacy Newsletter,
Vol. 9, No. 10.

SHARING WHAT WORKS: THE NITTY GRITTY OF VIDEO INSTRUCTIONAL USE, APPLICATIONS, AND MANAGEMENT

by
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Probably one of the most interesting observations derived from the changes in the technology used in education is that increased use of a newer technology does not obviate the use of the previous medium. What it does do is stimulate reexamination of principles applied in the uses of older media and raise questions about management of the medium product--such as a videotape--as well as about convenient retrieval of its message. The new medium usually embraces and includes much of the old medium and then inches ahead into use and application in either different or more effective ways.

It is obvious to anyone interested in visual literacy that analysis of a message on videotape will follow some of the same principles that analysis of a message on film or any other moving medium follows. Psychological impact, learning uses, are similar or applicable to those involving other media which utilize pictures, sound, and motion. Some pragmatic questions not as often discussed as questions about the content of the medium are what you do with the medium and the message after you have it in your hands as object and subject. Effective use in an educational resource center requires management as well as technical skills. In this case, we shall concentrate on videotape because of the theme of this conference, stressing the nitty gritty elements of instructional use of video and its application and management.

Some cogent questions are elemental and not elevated--such as how and where you will store videotape systematically so that it can be easily cataloged, found, and used by its audience. Will you produce your own or buy from commercial producers? How will you husband your resources? These are management and not artistic or research questions.

We all know that all media, print or non-print, are, of course, means, not ends in themselves. Any medium used creatively by someone who wants to reach an audience has a message or a purpose for its existence. It captures an idea in an object. So do books or still photographs as objects. So do motion picture films; or audiotape; videotapes; or discs--floppy or video.

Video has become an increasingly popular technological medium because of flexibility and adaptability in editing as compared with motion picture film, and because of its comparatively low cost. You can edit with relative ease. You can wipe it and re-use it. It is increasingly accessible to small and large resource centers and libraries alike in spite of dwindling budgets.

But like print materials, it must be managed in a systematic way so that you can store it and retrieve its content when you need it. Hence our purpose here is not to recommend software or hardware, or to discuss the technicalities of production of video programs, but to deal with the centralized management of the hardware and the software in a systematic way. The effectiveness of the use of a medium is proportional to the management of the medium--the accessibility and retrievability of the messages it contains; its care and feeding (budgeting); and the design of a system or set of systems which includes all these factors. All, also, involve determination of objectives, and well-thought-out decisions within the parameters of the money and manpower available to the manager.

Objectives determine the design of a system as well as its management. The determination of objectives hinges upon the nature of the use of a medium like video whether it is commercial purchased, in-house produced, or, with permissions, copied from the air. A media manager must decide how the video system relates to other systems with which it interfaces, such as classroom use, learning lab, or storage and retrieval. Considerations involved include the nature of the resource center or library facilities, staffing, maintenance, and student or instructional use. The ubiquitous bottom line, of course, is whether you can afford what you want to do.

Given the existence of hardware available to you, you will still have to determine your objectives in terms of the economically possible, and of the nature of the use of a medium like videotape.

There is the basic rule in the use of any medium which says first you need to decide what you want to use the medium for, what your purpose or audience is, and what your message will be. Using both sides of your brain, consider facilities, staffing, equipment, and the use you have targeted in instruction, and then visualize the message on the medium which suits your purpose.

Some messages really require only print and that may be the cheapest and best way to deliver them, depending upon the reading skills level of the audience and the nature of the message. If your audience doesn't read well, pictures and an audiotape may, indeed, be necessary. If the audience does read well, print may be the fastest, most convenient way to deliver, store, and retrieve informational messages. (That's why you read printed conference proceedings.) Those of us who daily deal with visual non-print messages sometimes forget this basic truth as we go about our visual right-brain business.

If you are being practical, some messages are best sent on a simple slide-tape which is economical and flexible. It can be quickly and easily edited and pictures can be changed without disturbing the soundtrack. They can be updated, a new or better view of some action or place can be inserted. This medium is especially effective when no motion is really required to tell your story. Skillfully produced slide-tapes can, of course, give the illusion of motion. Slides can be taken out and used in other programs. The tape can be reused if you abandon the message. The slide-tape is easily portable, and equipment abundantly available, as any conference speaker knows. Equipment delivery and security are seldom a problem.

Nevertheless at our center we note that the most popular medium today is video. It is most like the television which permeates our daily lives at home. Like an amoeba, it encompasses the functions of previous media from which it developed. It is not always the best for all purposes, but people like it. Actually videotape is best used when you want to record a message which is most effectively delivered by using motion. It can be edited which does take special equipment and time. Or the tape can be wiped and reused. Not indefinitely, but several times. In a cassette it is easily handled, carried, stored, and replayed if replay equipment is available where you are going to deliver the message. At a highly verbal higher education conference I recently attended in a city near our campus, a speaker, coming from afar and whose message was dependent on videotape, didn't know there was no conference budget for the weekend rental of playback equipment at the host hotel. His print-oriented colleagues had not included such equipment in their planning. He couldn't deliver the message. Fortunately our resource center was able to come to his rescue but not without considerable inconvenience to the staff. (I was glad my own paper used only overhead transparencies. That was daring enough for this particular conference. Besides, the overhead projector fits neatly and portably into my car trunk.)

If videotape is the medium you select, there are two broad general categories affecting management practices. First is the tape produced in-house. Second is the commercially produced tape you buy for instructional use and your collection. Most institutions or schools use a 3/4 inch format which is the standard for the commercial tapes; therefore, all videotapes in the collection can be economically played on the same playback unit.

In our resource center, we have moved from black and white to simultaneous studio or portable sound and color cassette recording. A management problem for a small or medium-sized institution if you were in the video game early is whether to keep old black and white tapes or cassettes and which ones. Criteria for discarding or erasing must be developed to conform to the objectives of your collection. Even though you have gone completely to color cassettes as a staple you may need to hang onto a tape playback unit so that you can have access to the older software in your collection regardless of whether you are now making and buying cassette tapes in color. A large enough academic resource center or library is bound to have some materials which have archival value, so how you handle the necessary equipment replacement and obsolescence that affect your budget is a management decision that needs to be given careful thought.

One important management function is deciding which way to go with new technologies, new hardware, and what to avoid getting locked into that may be a future cost white elephant. There is a great deal of talk about newer video forms, like the video disc. One of its obvious instructional advantages is that you can quickly access information anywhere on the disc; with video cassettes it takes longer. But we do not yet have video disc at prices for educational institutions. We shall need to wait for better progress with its development. Video disc is much like motion picture film. To produce a disc it must be carefully preplanned because once on the disc the material cannot be changed. Disc production is usually preplanned, edited, and perfected on videotape first to remove bugs. It is expensive to produce. The state of the art will need to advance considerably before educational institutions can make their own discs. Until then resource centers will probably begin by buying the finished disc, especially if it becomes as cheap as buying phono recordings, in which case the same cataloging and inventorying systems will apply as now apply to videotapes.

Unlike videotapes, playback causes no wear on a disc; it will last a long time with normal care. It can be exposed to a magnetic field and not be hurt because it is an optical system, not a magnetic one. However, this does not mean that you can scratch it, or give it harsh treatment; it is not indestructible. It is here, but people in the educational economy need to wait until others test it. IBM is using discs in training centers. For the most part, however, educational managers don't have IBM's facilities, staff, or budgets.

Each medium, as does disc or tape, has its own best uses depending upon your institution's learning philosophy and objectives. At this point, videotape seems more practical than disc which is unaffordable for most of us, but technological change moves swiftly. Perhaps by the time we can change over to disc, something newer will have come down the pike.

The next form of media technology along the way is, of course, interactive video, and the use of minicomputers in programming along with video monitors. These possibilities for learning for motivated learners are infinite. The management decisions to be made are portentous and of great magnitude. But remembering what happened to computer-assisted instruction, we can remind ourselves we aren't there yet, so we'll deal with the here and now and the current academic uses of video. Toffler's electronic cottage may be just around the corner, but for the average college or school system the mortgage is pretty high.

There are many possible educational uses of videotape as we know it at this moment. How videotape is used affects what you do with it after you have it, whether you keep and catalog it or wipe and reuse it. At our institution, we currently use videotape for many purposes. A few examples illustrate its wide range of uses as an in-house activity.

1. You can record events that you want to catalog and put into your archives, events that can later be used in other tapes by those who market your college programs, or which can be used for historical purposes.

2. You can produce directions about a process to be learned, or how to do something that can be shown to students for repetitious orientation to an activity--i.e., how to use the library, the catalog, a pipette, a microscope, a microcomputer, etc. One of the most popular uses on our campus is in the nursing curriculum. Following a model, students practice before taking proficiency exams in activities like bedmaking, hypodermic injections, catheterizing, interviewing patients. They see their faults, and continue to practice until they have reached their desirable level of competence. Working in groups, they critique one another before going to their instructors for final skill tests. Meanwhile instructor time is saved to perform other duties, a vital point because of their inordinately busy schedules. These tapes are wiped and recycled at the end of the semester.

3. You can use it for role-playing activities. It is used extensively for this purpose in classes in English as a Second Language. Replayed, the videotapes show the students how others see and hear them. These videotapes are wiped and recycled at the end of the semester as the personnel in the classes change.

4. Videotape is, of course, a good medium for individualized instructional modules if you can avoid a talking head and get the involved faculty members to write their storyboards with this in mind. Good video doesn't happen overnight and the management of time for camera work is only part of the picture. Time management of editing must be carefully planned to meet deadlines, especially if the video technician is responsible for other activities, as those in our center are. If you don't have adequate editing or captioning capabilities, it might be better to buy commercial materials. Good graphics are not easily or cheaply obtained.

5. You can pre-test and post-test on tape, comparing progress by comparing the pre-test with the post-test. These tapes, too, can be wiped after a semester and reused.

6. One of the most common uses of video is for playbacks which show activities requiring a critique as in speech classes, language practice, or as a competency test, as in athletics.

7. Learning Resources on our campus operates as part of the Maryland College of the Air consortium. We have permission to duplicate tapes off air for specified periods of time. Some programs are in the early morning, some late at night. If students miss them, they can come to the Learning Lab to see the missed programs which are there on videotape for their use. These tapes are cataloged for the collection if we have permission to hold them. If not, they are wiped after the semester or according to the permission period.

The only limits if you have good equipment, knowledgeable staff, and time are imagination and ingenuity. If your objective is to produce your own tapes, your management objectives and your budgetary planning will need to include planning of space, costs of equipment and maintenance, raw stock tapes, staffing for doing the work. Interpersonal management skills will be required to come up with ways to produce tapes which are not corny, or which are not merely ego-inflating for some professor, or which are of poor technical quality. In-house production must be high quality or it turns people off. Audiences who are looking daily at broadcast-type tapes on commercial television become highly critical of poor quality in school software. Students are harsh critics. Faculty members are tough critics of the software produced by someone else--even if someone else is a colleague. No course is ever as good as our own--Bronowski, Burke and Sagan not withstanding. Content is still another matter--the subject of another paper another time.

A contingent management consideration for a small tightly-budgeted operation is that although equipment is supposed to be simultaneously more sophisticated and easy to operate--according to the vendors--it is evident to anyone who has viewed scores of pieces of video software produced on such equipment that quality is a problem. Really good color recording takes technical expertise, good working equipment, a knowledge of the use of equipment and a feeling for aesthetics, not easy to find in one person, if your budget permits only one operator. A basic management decision is to think carefully about which kind of person to hire, depending upon your objectives and what the medium such as videotape will be used for. If the purpose is to convey information clearly, aesthetics may be secondary and straightforward mechnical skills primary.

An aspect of management which many people don't think enough about is how to manage all of the elements I have mentioned plus maintenance. In my opinion the most critical component is maintenance. Of course, you can do nothing with hardware or software if it is not functioning. If it doesn't function, your program won't function. Maintenance of hardware and software is the most critical and often least planned portion of the budget.

To forge these elements into an operating system, procedures must be worked out for who does what, at which time, under what circumstances. Small systems of operation need to be designed to fit into a total system of making your own tapes. As a manager, I have found it useful to have the Learning Resources staff make an analysis of all the tasks. They are then assigned to each individual in a working team, with accountability made clear and followed by evaluation of the product and the personnel. Perhaps we decide the product is worth neither the time nor the money--in which case, you have to make some decisions about what IS worth your time and money.

Once the tape is made, certain decisions again follow. Will it be kept permanently? If so where and by whom? Will it be erased at the end of the semester? If so, how will you get written permission from the maker or concerned faculty member to do that? What kind of check will be made on erased tapes to see if they retain their quality so that if reused you don't lose the next show? If you have copyright permission to tape off-air, a system for wiping tapes you can keep only seven days must be distinguished from tapes which you are licensed to keep. We use a system of colored dots to indicate which tapes follow which route and where they are to go. If we keep them we catalog them. They go to the catalog librarian, who catalogs them and returns them to the Learning Lab or to master storage, whichever is designated. The Learning Lab is for active use. Master storage is for occasional use. Each tape must be spot-checked for flaws before going to the person in charge of sending them on to whichever path they are to go. Each tape must be checked before labeling to make sure of copyright restrictions. Strict attention to detail and accuracy in labeling and designating where the tape goes in the system from the studio is essential. A lost or flubbed tape can mean angry students and instructors and poor service and public relations. In my experience the best way to work out procedures is to have the team responsible for taping and for the care and disposition of materials meet to work out their solutions to problems, put their suggestions for procedures in writing, and submit them to me in writing. After everyone agrees that there is an equitable division of labor, the consensus becomes a set of procedures by which the unit lives. When changes occur in the distribution of human resources or the objectives of the program, the procedure is again examined. Sometimes the initial design of a process is more complicated than necessary. After a trial run, people find it can be simplified. In this case, we change the design to save time, labor, or money.

Videotapes purchased from commercial vendors are often not only more professional but less expensive than in-house produced tapes if faculty and staff time is counted. They have other advantages as well. They use professional actors. We have videotapes with Bill Cosby on GED reading and by Dick Cavett on speed reading. NOBODY on our faculty can top that, either as talent or for appeal to the users. Commercial videotapes are made on locations we could not duplicate--hospitals, other parts of the world, in art galleries, or with narrators like Bronowski in "The Ascent of Man." They are not studio bound or bound to local geography as are our own tapes which are for education on this scene, at this time, in this place. They are usually of high professional quality made with expensive equipment. They are planned to use professional talent in smooth performances, or interview authorities in their fields; for single concept learning; and they make use of graphics--which are an expensive item. They are edited with sophisticated equipment. They generally come closer to the technical quality of color and sound to which a highly visually-oriented American clientele like ours is accustomed. Processing these videotapes is also much easier than the in-house procedure.

Following are procedures pertaining to commercial tapes. We have in our resource center a full-time materials faculty member whose job it is to be familiar with what is available, non-print or a combination of print and non-print, to think of how the item could supplement our curriculum or learning lab needs, and to order it for preview. The material is then previewed with at least one other person, someone in the academic discipline in which it could be used--a member of the nursing discipline, someone in biology, or English, or whatever area is appropriate, and a written statement of that person's opinion is filed with the record on that program. The selection is ordered if there is money available in the appropriate account or it is put into the budget for the following year. When the paper work for purchase is processed through the college accounting department, the tape or other material comes directly to Learning Resources, is checked to make sure it is the correct tape, of good quality, and all parts of the program are there, and is cataloged according to the appropriate Library of Congress designation, just as a book would be. After this it is delivered to the Learning Lab for use.

In the Learning Lab the students use videotapes in many ways. Locally produced tapes of students practicing speeches, language skills, etc., are sent to the lab and viewed and critiqued in one of the small listening rooms especially designed for this purpose. There are five rooms and they hold up to eight to ten students if they want to see the tapes in a small group. In the case of training students to use psychological therapy techniques, the videotapes may be made in the studio, reviewed there, and immediately wiped. Tapes of athletic events are viewed in the Lab by the players or are taken to a classroom where they are discussed with the teacher or coach. Instructors send students to view software related to their courses. Role-playing tapes made by language classes are retained for class or individual review. They can also be used in part for microteaching or teacher evaluation. Students in special individualized programs come of their own accord and work with the Learning Lab personnel on commercial skills tapes. Students review College of the Air programs which we have either purchased or which we have permission from the station to tape off-air for the semester the course is given.

Our materials specialist checks on copyright matters and indicates the disposal of the tapes. Either we have permission to keep them; we have a lease for them; or they must be wiped. Depending on their status and use, the tapes are shelved in the Learning Lab the semester they are used, or they go to master storage. The system is really very much like having books on reserve for a semester and having them removed at the end of the period of use. Space is a problem, of course, just as it is with books. We inventory at the end of each semester.

A system for the use of video discs would not be much different at this point in our thinking and we would base the purchase and cataloging of programs on floppy discs for microcomputers on the same general principles.

Each person must, of course, adapt to the particular set of circumstances in the person's institution or budget. The manager must ascertain clear lines of work flow that are based on good communication and on attention to detail. The small procedures should weave together into a larger system which becomes a part of the total system of the Resource Center or whatever the Learning Resources unit is a part of. Major decisions are made about what seem like minor points, but minor points become the basis for procedures which deliver the goods on time and in good order. We have been using video and other media for a number of years and have gone through a number of phases and many disappointments as well as successes. The use of any medium of this nature can be exciting but it can be very fragile as well. A moment must be captured on tape or it is lost forever. Technicians in turn must be careful or the tape and the moment are lost forever.

Management requires planning, much discussion with the personnel in the entire unit about procedures. It helps to have consensus and detail-oriented personnel. Our unit has been in existence for over a decade. I have been through the CAI program business--abandoned as inappropriate for our student population. Recommended instead in those days was the computer as a tool for classroom support but not instructional delivery. There was a fad about dial access which proved to be expensive in maintenance and teacher time. At one time I was urged to adopt it, investigated, and decided to wait because almost simultaneously along came cassette tape recorders. Dial access went out of business. Our language lab equipment was abandoned in the wake of the cassette audiotape. Next was video, the black and white porta-pak and the problems contingent upon the use of the equipment in poorly lighted classrooms on an old campus, etc. Then came our color portables and color video studio which now does nifty tapes. We see only expansion ahead. Also ahead lie interactive video, microcomputers, and cable television.

In designing management systems and then pursuing goals and objectives in the use of software and hardware managed by these systems, it is wise to be cautious about long-range planning. Changes in technology and the state of the art are sometimes augured with great fanfare and manufacturer's hype. A decision to go with one type of medium or another can be irreversible and result in the loss of lots of money. A decision to do nothing may be even worse--it may mean in the end you're getting so far behind the public and the student that you lose students. Management decisions in this business are not easy.

Decisions about the system you will use to catalog your videotapes and other software are crucial; you will be stuck with the system for a long time. I believe that my own decision to stick with the same cataloging system we use for books and the Library of Congress classifications was a sound one. I have seen many centers in which tapes are numbered by an internal system which turns out to be inflexible, and finally, if the collection grows, overwhelming. Sometimes by reinventing the wheel, the tire goes flat. The same old wheel may be the best way to get to your destination.

The non-print media are expensive. They are not toys, and the manufacturer's lures must be examined in the light of what is practical.

Equipment purchased should be easy to repair and operate. It should be compatible so that you can store compatible parts, lamps, patch cords, etc. Otherwise super software or your videotapes won't be used to their fullest capacity if the equipment doesn't work. To be effectively used, the artistically created tape or the best of programming depends on management details.

Management decisions require long-range planning; staff involvement; communication; cognition; and often intuition. Most often they require thinking ahead and using basic common sense.

VISUAL LITERACY AND THE ELEMENTARY STUDENT: PROJECT VUE

by

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It is a widely held opinion that students in public schools today are different from their counterparts of previous generations. The dominance of television in the home is one contributing factor. The implications and consequences of this fact are only beginning to be recognized in the curricula and learning environments of present day public schooling. In the Lafayette (IN) School Corporation in 1979, there emerged several concerns related to this student phenomenon. An informal needs assessment indicated a desire on the part of teachers to improve their expertise in the area of media in order to help students develop critical viewing skills. The basic competency movement promoted increased awareness of the effects of mass media. The local newspaper reported its findings from a television viewer questionnaire and revealed that 22% of the Lafayette respondents watched 6-10 hours of television a day. As an outgrowth of these events, the library media specialists at two elementary schools decided to do something to help teachers, parents and children become more knowledgeable in the area of visual literacy.

To define visual literacy to the satisfaction of everyone is not the goal of this paper. But, within the context of the grant proposal which was developed, it was necessary to describe what visual literacy involved and how to work toward its achievement. To define in the written word a concept that is primarily non-verbal is difficult. Furthermore, visual literacy changes as more experience and sophistication are developed. Notwithstanding these limitations, the most appropriate definition of visual literacy is that it is a field of study, a process and a synonym for visual languaging abilities. The grant proposal became, upon funding, Project VUE (Viewing Understanding in Education).

Project VUE had two objectives its first year: (1) to develop within teachers competencies in visual languaging and strategies for integrating visual competencies into the curriculum, and (2) to create an awareness among parents of the effects of visual communication and of the need for critical viewing skills in the home and school. The activities identified to help achieve the objectives included workshops for teachers and parents, monthly newsletters, completion of visual literacy projects by teachers in VUE, and employment of a Creative Resource teacher to coordinate projects, develop materials and support the integration of the visual program within the curriculum.

The important element of Project VUE (and of the definition of visual literacy) is its emphasis on process. In order for teachers and parents to develop the skills and competencies stated in this grant proposal, they would have to gain experience in visual processing. Without this experience in visual processing, teachers would not transfer and apply their knowledge to all aspects of learning.

A problem-solving model was utilized to assist teachers in organizing their lessons and the experiences of students. Planning together, the classroom teacher and the Creative Resource teacher would identify a problem from some curricular area which could be solved through visual languaging. For example, a third grade class was studying economics and advertising. The problem was identified as the need for students to apply their knowledge of advertising techniques. The medium selected was the photo essay. Each student produced his/her own photo ad, using an advertising technique he/she chose and applied. In another example, all sixth grade teachers in the two project schools wanted to work on self-concept and communications skills with their students. Video was chosen as the most appropriate format. What resulted was a two-hour video pen pal record of seven classes. Each class produced a video "letter" of 10-15 minutes in which they told the other classes about themselves. Once the curricular problem and visual medium were decided, the project was begun.

The problem-solving model and its steps utilized for the projects are shown in Figure 1.

This model was used by individual students and large groups of students as well as by teachers to plan and operate a visual literacy project. To produce a photo essay, each student would have to complete each step in the model. To produce a video tape program, students were broken up into many small groups. Since it was not possible for every student to do everything, committees worked on scripts, storyboards, props and so on. Everyone did get a chance to appear before camera if so desired. The model helped students practice responsibility toward others and decision-making because each succeeding step relied upon completion of the previous step.

In end-of-the-year evaluations, teachers in the project expressed satisfaction with the effectiveness of the model in planning and completing projects. Many claimed increased confidence in their own ability to apply this process to other projects. Some intermediate students even applied the model to their own extra-credit projects. The workshops attended by project teachers were rated useful when the invited speaker was either inspirational or practical.The fairly common response to any theorizing was, "That's interesting, but what can I do with my class tomorrow?!" Parents and teachers alike were supportive of the Project VUE newsletter which monthly reviewed projects under way, noted upcoming television programs of interest, provided suggestions for dealing with sensitive issues raised on programs, and reported the results of a critical viewing survey conducted among parents of the two schools. Workshops involving parents were evaluated as worthwhile by those in attendance, but only a small number of parents participated in the two workshops.

PROBLEM SOLVING MODEL
Project VUE

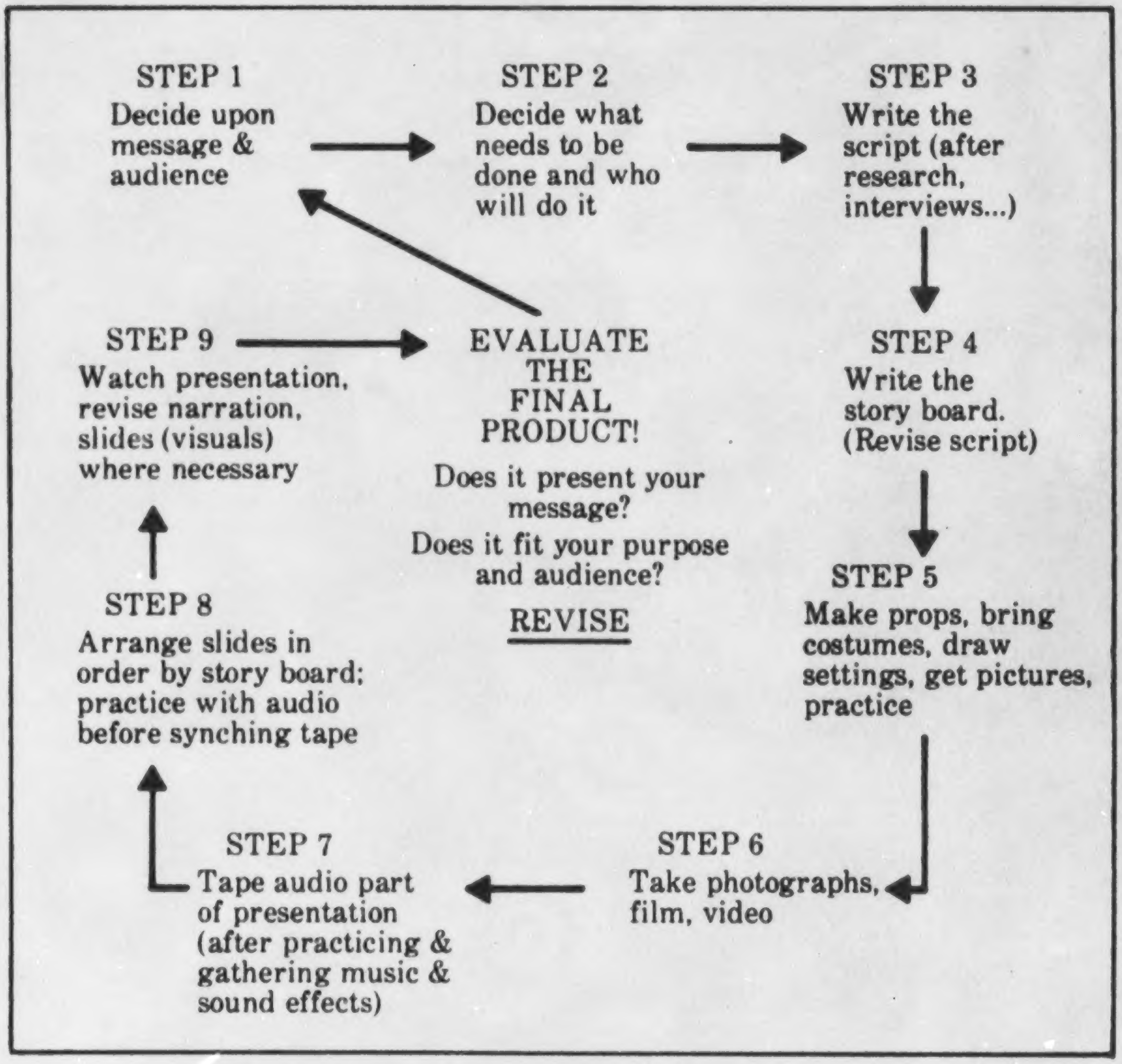
STEP 1
Decide upon message & audience
STEP 2
Decide what needs to be done and who will do it
STEP 3
Write the script (after research, interviews...)
STEP 4
Write the story board. (Revise script)
STEP 5
Make props, bring costumes, draw settings, get pictures, practice
STEP 6
Take photographs, film, video
STEP 7
Tape audio part of presentation (after practicing & gathering music & sound effects)
STEP 8
Arrange slides in order by story board; practice with audio before synching tape
STEP 9
Watch presentation, revise narration, slides (visuals) where necessary
EVALUATE THE FINAL PRODUCT!
Does it present your message?
Does it fit your purpose and audience?
REVISE

Figure 2

The most effective component of Project VUE, according to evaluations, was the availability of the Creative Resource teacher to plan, produce materials, and team with the classroom teacher.

The overall goal of Project VUE was to assist teachers and parents in becoming more knowledgeable in the area of visual literacy. Teachers appeared to support the idea of integrating visual literacy skills within the established curriculum. The comments of parents who had children participating in a Project VUE project were very favorable. As Project VUE entered its second year, however, its focus shifted from teachers and parents to students. A sequence of skills and activities was developed and field tested for grades K-6. In an effort to measure student growth and learning in visual literacy, a visual perception/processing/expression pre- and post-test was developed, tested, and refined. A resource notebook in which the activities of the past year are broken down into objectives, material, procedures and evaluation was prepared.

During the third year of the Project, emphasis is being placed on outreach to the remaining nine elementary schools in the corporation. The full-time consultant is involved with 45 teachers in the nine schools. Specific-skills workshops in media production are being offered to these teachers as well as resource support for media projects.

Lafayette School Corporation has received a grant to replicate the project in the two Junior High Schools during the 1981-82 school year, so that students may continue the development of skills in visual literacy. The corporation is committed, so far as possible, to creating a full K-12 visual literacy continuum.

As stated in the initial paragraph of this paper, students today are different. Their futures lie in the 21st Century. Project VUE hopes to prepare them for their futures by providing them with the process and the skills to become visually literate.

SUMMARY OF PRESENTATION ON ABC/NEA SCHOOLDISC

by

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Videodiscs are a relatively new form of electronic communications. Briefly, a videodisc, approximately the diameter of an L.P. record, is a playback system which displays a superior video image and stereo sound tracks that can be used together, or separately for different combinations of information or language. The unique composition of the disc is such that it is extremely durable, easily stored, and will play forever with no deterioration. In comparison to pre-existing technology it is much less expensive and infinitely more versatile. These grooveless discs are "read" on an optical laser machine which is simple to operate and provides special features such as high speed fast forward, rewind, stop-action, slow-motion, and almost instantaneous access to any single one of 54,000 frames per side. These features allow the user to locate and play any segment or frame on the disc within a matter of seconds and it can be used in conjunction with computers. Its educational utility is unsurpassed by any existing technology. The National Education Association in collaboration with ABC Television has been working on SCHOOLDISC, a concept to tap that educational utility. The following is a brief outline of my IVLA conference presentation explaining ABC/NEA SCHOOLDISC.

I. Development of Video Programming

- Evolution of Technology
- Disc vs Tape
- Types of Videodisc Players

II. Concept of SCHOOLDISC as an Electronic Book

III. "Conventions" Available to the SCHOOLDISC

IV. Characteristics of SCHOOLDISC

V. ABC-NEA Collaboration

- ABC's Interest: production
- NEA's Interest: improve instruction, involve teachers
- Development Process; Field Test; Evaluation Process

VI. Demonstration of Disc Player with Segment from SCHOOLDISC

VII. Expectations from SCHOOLDISC in the 80's

- Technological (still-sound, recording, etc.)
- Integration with computers
- Jr./Sr. High School courses
- Basal Reading, Math, Science, etc.
- Foreign Language, Health, Arts, etc.
- SCHOOLDISC Catalog
- Tie-in with publishers

VIII. Audience Interaction

VISUAL MEDIA UTILIZATION AT THE KENTUCKY SCHOOL FOR THE DEAF

by
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Kentucky School for the Deaf
Lexington, Kentucky

The Kentucky School for the Deaf (KSD) is situated on some 170 acres of the picturesque Blue Grass Region of central Kentucky. The campus is comprised of an architectural mix of eighteen buildings, six of which are used for formal classroom instruction. With the exception of a few maintenance and storage buildings, each building is equipped for extensive use of visually mediated information exchange in a variety of formats. KSD is a 24-hour-a-day residential school which inherently means that instruction and information exchange do not cease at 3:15 each day, Monday through Friday. In fact, the scope of services provided to the residential aspect of the program may be more far-reaching than the scope of services provided to the instructional aspect of the program. Clearly, though, the need for utilization of high quality visually mediated instructional materials does exist.

The very nature of the handicap of deafness dictates that the primary medium of information exchange for hearing-impaired individuals is the visual medium. Thus, the thrust of any and all educational programs for deaf persons is toward visually mediated interchange, even in so-called "oral" programs. The philosophy at KSD is one of total communication. That means that a variety of communication techniques are used to facilitate the free flow of ideas and information between students and staff. The purpose of this paper, then, is to give an overview of visual media utilization in the setting which has been thus far described.

Television

Closed circuit television is utilized extensively on the KSD campus for instruction, enlightenment and entertainment. Each classroom building has a television distribution system which may be utilized for any of the above mentioned purposes, and each classroom has a TV receiver. Each dormitory also has at least one TV receiver which is, at the present time, used primarily for entertainment. In the very near future, however, there will be a campus-wide system which will interconnect all campus buildings so that any signal transmitted from a head end may be received by any or all receivers on the line. The campus-wide system opens the door to numerous possibilities for utilizing instructional television to a greater extent.

There is also the capability to produce television programs locally with a fully equipped color studio on campus. Television programming is visually mediated in a variety of ways. Many programs are interpreted by the instructor in the classroom as they are presented. Certain specific programs are presented by the networks in "closed-captioned" format which allows for videotaping the programs complete with captions. There is also the capability to caption pre-recorded programs locally. Students are actively involved in the processes mentioned here, particularly in the local production of programming.

Motion Pictures

Another highly visual format which is used extensively at the school is the 16mm motion picture. The Special Materials Project of the United States Office of Education underwrites a captioned films program for deaf individuals, for both instruction and entertainment. Schools for the deaf are fortunate enough to be able to take advantage of both aspects of this program. Other visual media are utilized to a great degree by the teaching staff at KSD for classroom instruction and for enrichment. Many of the materials which are used are produced at the local level, primarily because the same materials would not be available commercially which would fit into a deaf education curriculum. Even those materials which are available must often be modified or adapted for particular needs. KSD has a well equipped media services program which is capable of producing reasonable quality materials for instruction, and adapting commercially produced materials to the local needs.

A current development in the area of visual media is, of course, the microcomputer. KSD is using computer assisted instruction (CAI) in the areas of math, language arts and business education, with plans to expand into social studies and living skills areas in the relatively near future. Most of these materials are commercially produced, and in some cases have been modified to overcome any language barriers to hearing-impaired users. Computer games are used in a contingency management role for the positive modification of behavior in the classroom. Microcomputers are also being utilized in an administrative role for organizing and processing information about materials and about students.

The future definitely appears to be favorable to visual media utilization, particularly for the electronic media. The merger of television and the microcomputer has created a veritable mountain of possibilities for microprocessor controlled, visually mediated instructional techniques. In fact, the future of visual media utilization would appear to be in the visual-verbal combination of both printed and non-printed materials as learning strategies tend to lean toward the total involvement of the individual in the learning process. After all, isn't education a learning process? We certainly hope so!

ONE PERSON'S IMAGERY: AGES THREE THROUGH TWENTY-THREE

by
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University of Pittsburgh
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This paper has been written to augment the narrated slide presentation of the study "One Person's Imagery: Ages Three Through Twenty-Three." While it directly serves the need to 'submit a paper' it also serves additional purposes such as providing information regarding the context in which the study developed, a rationale including the purposes for which it was designed and some of the contributing ideas which form an implicit structure for the study.

The form of this study is essentially a collection of photographically recorded images, mainly the graphic and pictorial products of one person, Larry. The content of the study derives from an examination of current assumptions of the multiple meaning dimensions of graphic expression with reference to the evolution of one person's imagery. The case history materials are selected for biographical reasons but also to remark associations (similarities as well as differences) with the current literature. This content also provides an opportunity to give recognition to the fact of Larry's evolving capacities in a variety of areas and thus to counteract what could be a limited one dimensional view.

A longitudinal study enables us to trace the individual formation of schema from first mark to shaped boundary and to observe the individual development and selection of depicted units as well as their combination into equivalents (Arnheim 1969, Goodnow 1977). The evidence of Larry's continuous search for visual form to satisfy the changing demands of his social and emotional as well as mental and aesthetic needs creates the dynamic tension which may carry the viewer as a participant through the evolution of his imagery.

In this study the examination is through several contextualizing viewpoints integrating an idiographic with a nomothetic frame of reference. The images or imagery which are the focus of the examination are organized chronologically and divided into sections which represent developmental stages as well as changing educational environments. The narration which serves as an introduction to each section has been selected from a larger body of descriptive and analytical material. The decision to include more visual material necessitated the reduction of verbal material. It is hoped that the specificity and continuity of the visual images will counteract the episodic nature of the narration.

"LOOK! LOOK! The leaves have lost their trees!" (Larry, age 4. Occupation: child)

When encouraged by acceptance and appreciation the expressions of children frequently reveal their unique view of the world. If the form of expression is a drawing, a mark or marks on paper, it has a tangible existence which can be referred to after the moment through which we may glimpse the inner world of the child.

It is not, however, a transparent window--a view that anyone with sight may see. In fact, like all skillful seeing, this view requires the systematic informed effort we call study. Study, like drawing, can be used as a noun or as a verb. The noun is the product of the process referred to by the verb. The study revealed in this presentation is a product, but in its form it also provides the means to engage in the process--it provides visual materials--a visual record of one child's graphic expressions--to study.

In the search for a conceptual approach to the study several ideas were considered. Adult art was the referent for the Krietler's concept of multi-leveledness as a mediating cognitive function that is activated in the interaction between observer and works of art. However, because "every symbolic expression is essentially multileveled" it seems appropriate to apply this conceptual frame in responding to the symbolic transformations of experience which are child art.

> Multileveledness is the capacity of a work of art to be grasped, elaborated, and experienced in several systems of connected potential meanings, each of which allows a meaningful, clear, comprehensive, and sometimes even autonomous organization of all the major constituents of the work of art. Each such system of meaning may be called a level. (Krietler, 1972, pp. 294-295)

Levels are not derived by abstracting or selecting out specific qualities of the work but rather by differences in ways of organizing or finding relationships among the qualities represented. It is not a reductionist effort but is instead a synthesizing hypothesizing response. A critical factor in this approach is the capacity of the viewer.

> Complementary to the various features of the work of art which make multileveledness possible, there is the capacity of the observer of art to grasp multileveledness perceptually, conceptually, and experientially. This capacity rests mainly on the ability to shift points of view, to exchange one frame of reference for another, and to replace one organization of the perceived stimuli by another organization. (Krietler, 1972, p. 299)

The conceptual framework of multileveledness has served both as an operational guide and as a philosophical underpinning to this study.

This approach to child art differs from most others in another way. A conceptual understanding of the meaning of child art usually refers at some point to a selected theoretical stance as well as to the iconic evidence. Frequently the literature of child art examines a variety of iconic evidence in terms of a single theoretical frame of reference.

This deductive process is good and reasonable. However, it was this researcher's intent to provide another approach to the same general field of knowledge--an inductive one--by means of a longitudinal study.

A basic premise of this approach is that the consistent view achieved by examining one child's evolving imagery may serve to reveal cognitive aspects of the changing evolving imagery in a way that products from a group of individuals may not. While this approach may limit the option of generalizability it does provide instead a holistic view--a counterbalancing advantage through an opportunity to observe the products created by one person over a spread of twenty years. Such in depth material is not often available for examination.

The material provides richly for a variety of meaning dimensions. General developmental stages are evident in the graphic work. These stages include the developing perceptual and cognitive processes and their manifestation in visual qualities of the images. One such aspect is the developing use of space. First we see the child's use of the two dimensions of the paper; its edges acknowledged as concrete boundaries and as placement cues to be echoed by base and sky lines. This schematic use is followed by a gradual recognition and use of the conventions that enable one to represent three dimensional space on the two dimensional surface. This observable transition and transformation usually occurs in most children's work. In addition to these common characteristics there are unique personally significant themes which include from an early age the representation of action or movement and the depiction of what was happening beneath and inside of the forms that were drawn. (See Figure 1.)

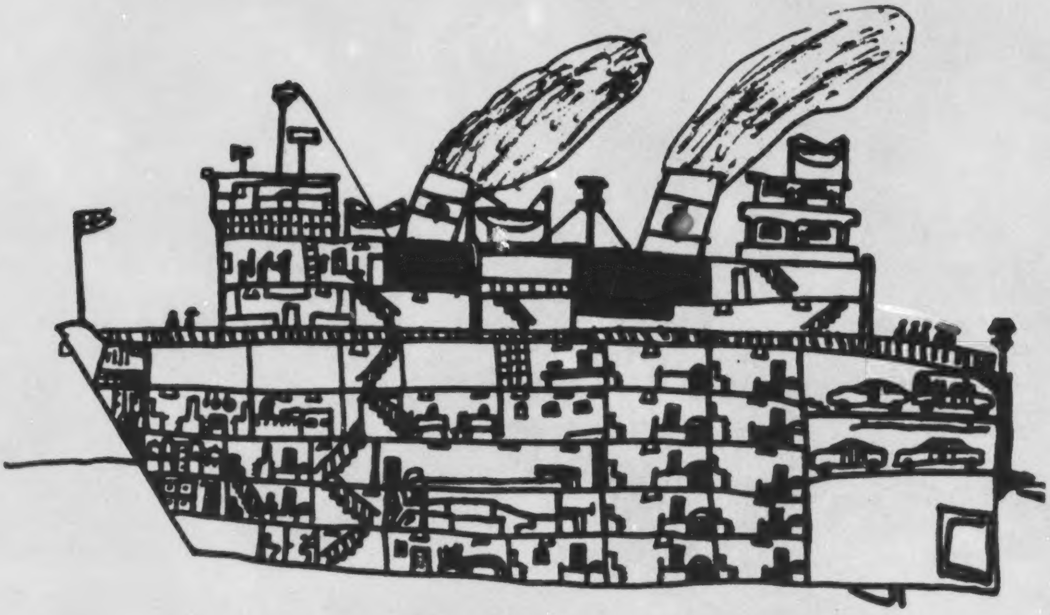

Figure 1

Because of recent controversy over the use and uselessness of developmental stages (Wilson & Wilson, 1981) it may be useful to comment more fully on this specific meaning dimension which is encountered frequently in the description and analysis of Larry's imagery through preadolescence (Dawning Realism).

Developmental stages in graphic expression provide a vocabulary, a way of categorizing and describing children's art in terms of some general visual qualities. In effect, however, this is soft information. Age-stage formulations should not be considered appropriate to use as a scale or quantifier for empirical research. Arnheim's suggestion of the use of the stages as a 'type concept' rather than a 'container concept' may be useful in this regard. It also provides a bridge to artistic style.

A type concept of stages of child art represents the structural essence referred to by the stages without developing an expectation that each token of the type, each piece of child art, will represent the type exactly (see Arnheim, Visual Thinking, p. 174, for differentiation between container concepts and type concepts). Approximations of the pure type may appear but they are not consequently more meaningful because they are more typical. The concept assists us in understanding children's art in terms of stages but limits our use of them as either/or conditions.

Larry, whose visual products form the basis of this study, was in some ways exceptional in his continuous use of the visual as a viable means of expression. Gardner refers to the fact that "the flowering of child art is like other flora seasonal" and the expressiveness that delights us usually ceases to be as (perhaps) a result of the school experience (Gardner, 1980, p. 142). Larry did not cease using a visual means to express ideas. As his mind grew in its facility in storing and handling more complex ideas and as he acquired more knowledge, so his images grew in complexity both in the amount and kinds of information that were included as well as in the qualities of form that could be called aesthetic. (See Figure 2.)

There is visual evidence that notes the change in locus of idea (or content) from mainly internal self initiated content to that which is determined by an external agent (teacher or employer). However, it seems significant to the recognition of a developed aesthetic that a stylistic coherence remains. It is perhaps more obvious in the earlier work but is still evident in the client-determined imagery of the later work. (See Figure 3.)

As part of a description of this study it is important to note other applications of the material within it. One is related to the author's current professional involvement in the uses of visual imagery in thinking and learning. Imagery is just now overcoming the 'bad press' it received at the hand of psychology during the first half of this century. This new interest in imagery brought about initially by

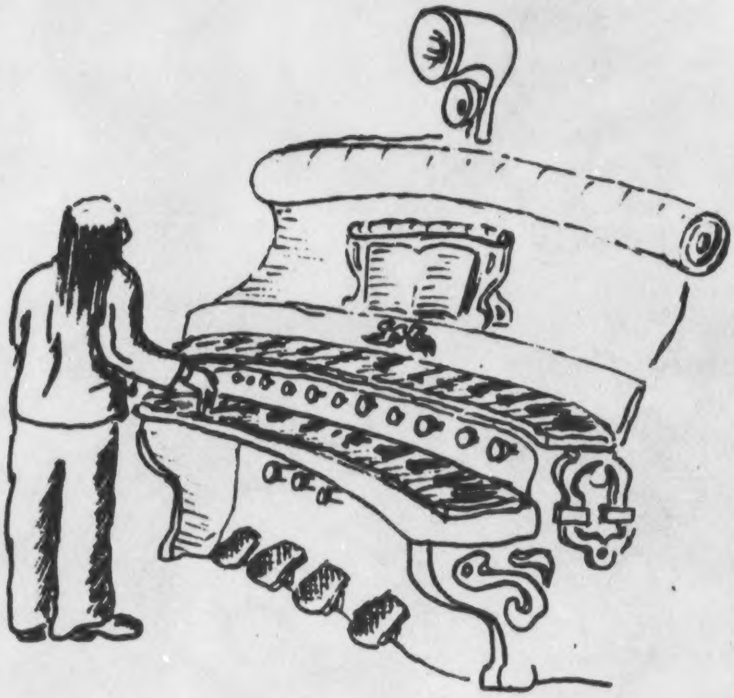

Figure 2

events outside psychology now is seen as a legitimate focus for study (Holt, 1964). In order to develop a coherent picture of the mind and the way it develops it is necessary to understand the role of imagery in cognitive development. While much of the work in this area focuses on the study of ability and facility in reading, remembering and reporting the 'given' image, it may be useful to consider one person's production of imagery as another source in an integrative approach.

Another of the projected uses of this study, and one which has been implemented, is in teacher education. Teachers need to become familiar with the visual qualities and effects of children's drawings and they need to develop skill in assessing the cognitive processes that may be evident in them. Adults who are not familiar with the forms of children's visual expression often use inappropriate criteria in their response to it. In the center of a continuum that extends from a judgment of child art as a primitive lack in fidelity to reality, to an undifferentiated acceptance of any child made mark as a 'work of art' is a sensitivity based on sensibility. This sensibility or knowledge of the meaning dimensions of children's visual expression must be

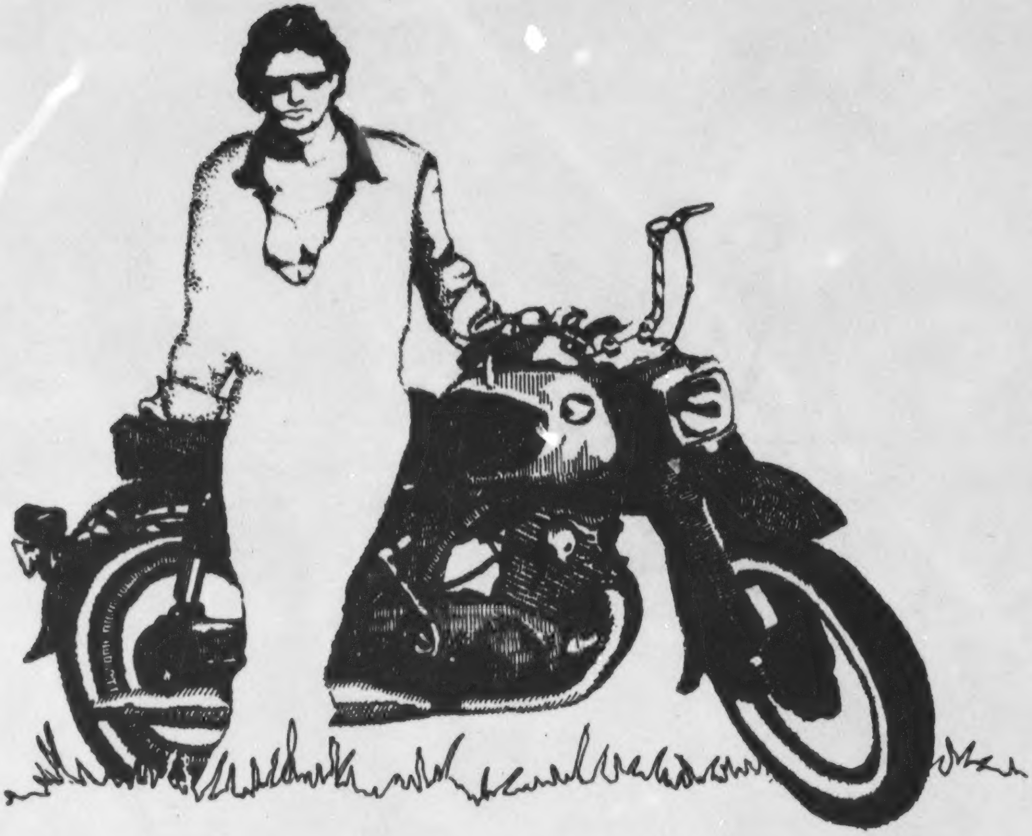

Figure 3

facilitated through perceptual experience such as is provided through the material of this study--both the images and the comments concerning them. In other words, teachers need to develop responding skills to reinforce the child's continued development of productive skills in graphic ideation and both processes fall under the rubric of visual thinking.

Teachers also need to become familiar with a variety of means for understanding and assessing the development of the children with whom they work. Frequently the assessment of the developmental level of a particular child is achieved through combining limited forms of information derived from sources such as test scores. Anecdotal records or observations by trained observers (not all teachers are trained observers) are sometimes used, but seldom beyond the primary years. Teachers should develop facility in using other types of examples of children's thinking to develop their hypotheses of expectation for individual children. Selected aspects of this study are used to facilitate an awareness of this potential and to initiate, or practice in part, the needed skills. Teachers in our program are guided in developing skill in 'reading' the drawings of children; this includes acquiring an understanding of aspects that represent developmental stages as well as those that refer to individual differences in expression and those that point to contextual influence.

In summation, this examination of the visual record of twenty years of involvement in the uses of imagery and the creation of visual images is an attempt to derive an understanding of the multifaceted unity of an individual shaped by a complex interplay of inherent and event circumstance. It is this researcher's intent to share this rich fund of case study data, which visually represents one child's coming to be an adult, with others whose professional foci may generate different assumptions or additional implications for further study.

epilogue

> "The trees in this section of the country don't provide the right visual effect as we surround for the product. After I select a model we'll have to fly to another location for shooting."
>
> Larry, age 24
> Occupation: Art Director for
> Advertising Agency

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DIABETES HEALTH EDUCATION

by

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Background

Diabetes is an incurable illness. Its course can often be controlled by means of insulin injections, oral medications, or diet therapy. The goals of such control are to maintain normal blood glucose levels on an hour-to-hour basis, thereby avoiding acute complications of hypoglycemia or hyperglycemia.

It has become increasingly apparent, however, that acute complications are only part of the control problem. Serious, long-term complications of diabetes include heart disease, kidney failure, blindness, loss of peripherial neurological function, and chronic foot ulcers resulting in amputations. The cost of such chronic complications is significant. Diabetes and its complications are the number one cause of hospitalization in Kentucky, excluding childbirth. Recent research indicates that very tight control of diabetes reduces the risk of long-term chronic complications.

Patient participation in the treatment of diabetes is essential. Dozens of decisions each day must be made with the probable effects on the illness being taken into account. This requires a high degree of understanding by the patient of the effects of diet, exercise, stress, infections, medication, and other factors on the blood glucose levels.

Further, patients must be skilled in concepts of self-care, including self-examination, self-medication, and blood or urine glucose monitoring. The curriculum of the Kentucky Diabetes Center includes all of these areas.

A commitment to effective teaching requires exploring new technologies of patient education. We are particularly concerned about the lack of effective learning by adult patients with lower reading abilities. We attribute this in part to a heavy dependence upon written patient education materials such as those displayed here.

A readability analysis (Table 1) of several commonly available diabetic patient education pamphlets revealed that it is very difficult to produce material with grade level reading below the seventh grade. This was found to be due mainly to the large proportion of long, difficult, or unfamiliar words that form the vocabulary of diabetes self-care. This included material developed by our own program which was intended to be readable by persons with third grade reading skills. We found a significant negative correlation between the composite reading difficulty and the number of illustrations per 100 words ($r = .7$, $p < .05$; see Table 2).

Table 1

Characteristics of the Sample Texts

Text	Words per Sentence	Syllables per Word	Syllables per Sentence	Percent Hard Words	Percent Long Words	Illustrations per 100 Words
1	9.22	1.57	14.53	11	30	7.71
2	7.66	1.76	13.51	9	23	14.49
3	17.13	1.37	23.47	8	22	0.84
4	23.70	1.93	45.92	19	36	0.70
5	16.36	1.59	26.13	16	36	0.56
6	10.60	1.63	17.36	16	31	0.94
7	9.86	1.28	12.66	2	20	4.39

Table 2

Illustrations/100 Words Versus Composite Readability Scores

Pamphlet	Readability (Reading Grades)	Illustrations/ 100 Words
7	5.5	4.93
8	7.3	4.91
2	7.9	15.54
3	8.2	0.84
1	8.5	7.71
6	10.2	0.94
5	11.2	0.56
4	14.3	0.70

We determined to explore computer aided instruction as a means of teaching adult patients with low reading skills concepts of self-care. Specifically we adapted a highly illustrated Urine Testing Guide to a program that runs on a micro-computer.

The system used to implement the program includes

1. A 48k Apple II + computer
2. Two disk drives
3. A color monitor for video output
4. The PILOT software program

The cost of this configuration is approximately $2400.

The PILOT system is specifically designed for developing CAI lessons. It has two main operational modes:

Author - for creating lessons
Student - for running lessons.

The Author mode has six main features:

4 editions:

- lesson text
- graphics
- sound
- character set

2 Utility programs:

- disk formatting
- copy a lesson disk

These allow one to create lessons on any topic, according to several teaching strategies (4 of which are shown here) with graphic and auditory enhancements to written lesson texts.

The lesson which we produced is presented to the patient in the context of a clinical setting in which education alternates with medical or nutritional consultation as well as physical examination and laboratory testing. It begins with a MENU that identifies the program and immediately presents the patient with a choice. The program runs in four modes, each based on a different teaching tactic. These are -

Automatic - program paced automatically
Interactive - viewer sets pace
Teaching Quiz - viewer gives answers, which are evaluated in detail
Quick Quiz - assesses patient knowledge with a less detailed comment on answers to questions

Patients are encouraged to view the program in either the automatic or interactive modes first, and then to view it again in one of the Quiz modes.

Advantages and disadvantages of the system for instructing patients include the following:

Completely customized material can be created.
Low cost for an institution.
Limit on amount of material included in each lesson.
Low resolution of images compared to regular television images.
Cost presently high for the individual so that compatible systems in the home are uncommon.
Not attractive to all learners; some are so engaged or put off by the computer that they attend hardly at all to the lesson.

Conclusions

1. The CAI does not stand alone--it must be supported by other instructional techniques.

2. The CAI must have a clinical sponsor--the nurses are teachers ... the teachers are nurses.

3. Current experience suggests that a new aesthetic, peculiar to the characteristics of the medium, must be the criterion for quality programming.

4. Not every patient finds the computer an attractive learning tool. A period of desensitization to the computer must take place before the lesson can be attended to.

5. For some patients, particularly younger or better educated patients, the computer is an attractive teaching tool. This does not resolve the problem of adult patients with low reading skills. It is expected that after a longer exposure to the computer, such patients will shift their attention from the computer itself to the information that it is presenting.

LEARNING FROM TELEVISION DOCUMENTARIES: THE OPEN UNIVERSITY EXPERIENCE

by

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COLIN ROBINSON
BBC Open University Centre
Milton Keynes, England

Robinson:

We presume that not many of you know much about the Open University, what it is and how it works, so we thought we'd better sketch that in for you. The Open University is an independent, autonomous University like any other in the United Kingdom and it gives degrees. It's been going about twelve years.

By 'Open' we mean that students joining it don't have to have any prior qualifications, no 'O' levels and 'A' levels from school. It's very much a first come, first served basis. And our courses take them from the ability to multiply and divide, add and subtract as it were, up to first year University level in a foundation course. Another aspect of the word 'open' is that our students can choose their study pattern, whatever they like. They have about 120 different courses to choose from and they can define their own degree profiles through them. The big difference with other universities is that we have no students on the campus. They are all around the country receiving their materials by mail.

We do have about 2,500 full-time staff on campus. We have a national network of part time tutor-counsellors. They are the face to face contact between the students and the university. At any one time we'll have about 50,000 undergraduates studying. They are mature students, they are second time around students, people who missed out the first time.

Already in ten years we've given out about 44,000 degrees, and they are equivalent in status to any other normal Bachelor's Degree. Now to get an open University degree, an ordinary degree, a student needs to

EDITORS' NOTE:

A complete transcript of the joint presentation by Bates and Robinson follows. Although script sections for the sound and TV clips were provided, we have included only one portion which illustrates how the student can be prepared for more successful TV viewing.

acquire six credits, eight for honours, and to do that there is a choice between about 120 courses; each of those may be worth, say, half a credit. Foundation courses are one credit, but most courses are half credit. One of those credits will take about fifteen hours a week of study, for nine months of the year, with all of the willpower and the support from the family that needs. Remember that these are mature students who are working for the livings as well. They're doing that fifteen hours in their spare time.

The primary medium for study is text, and students get these things through the mail [holds up specimen text]. That's in fact a double unit, two weeks work, about thirty hours of study.

Okay, we're here to talk about television. The Open University's television is made by the BBC, I think you've probably heard of that at least! We're in a partnership with the Open University to produce about thirty hours of transmitted material per week. We are also making increasing use now of audio cassettes and just starting to utilise video cassettes. We are, to that end, making about two to three hundred new television programmes each year. That's as much as a regional network centre in Britain. And to do this we have our own self-contained department.

The way I fit into this, I'm one of about 70 producers. They're mostly academically qualified, many of them have Ph.D.s. They're specialists in their subject areas, so we have specialists in bio-chemistry and geology, in social sciences or whatever. We are deployed therefore to match the faculties. So producers like myself will sit on course teams to advise on the way television may be used. We will help to design that course, for a couple of years before the course is actually presented. So we are both part of the University in that sense, members of the faculty board and yet we are employed by the BBC.

My remarks then are those of a programme maker, a producer, but to get the ball rolling, Tony is a researcher into educational methods and students' study behaviour.

Bates:

I think that after Neil Postman's address, we ought to perhaps change the title to the International Visceral Literary Association. [LAUGHTER IN BACKGROUND] We didn't know what Neil was going to say when we prepared our talk, but I think you might find it an interesting counter-balance, as we hope to show that television in fact requires very high level learning skills, of a rather different order than what Neil was worried about.

First of all I want to talk about a problem that we found through the research. We've done quite a lot of research into case studies, documentary style programmes, in Open University courses. These documentary style programmes look very similar to the documentary style programmes you'll see on general broadcasting both in Britain and here. I want to give you an example from one of these programmes. This is from an honours level course in social sciences, called 'Patterns of Inequality'. The course is about inequalities of various kinds, inequalities between nations, between classes, between sexes, and this particular programme is the first programme in the series. The extract is from about half way through the programme, and it deals with a Union meeting, where they're discussing the provision of a creche for women workers. The programme is about inequality in women's work.

[Narration from videotape omitted here.]

Now that's a typical example of what we mean by documentary style programme. It's source material for the students on which to work, a slice of life. It allows students to observe people's perceptions, prejudices, how they view problems, and the idea is that students would relate this to what they were learning in their studies. It's a very common OU usage. Particularly note the sort of fly-on-the-wall approach. There's no academic intervening there at all, you're just watching what happens. We were interested in how students used such material in their studies. We looked at about seven programmes of this kind in some depth. Now, I don't have time to go into the research methodology that we used (if anybody wants to ask about it afterwards I'll be pleased to talk about it), but I really want to go straight into the results if I may.

The first thing we looked at were the programmes themselves. What features in the programmes did we find? We found that documentary programmes tended to have five, at least five, "dimensions," and each programme tended to vary along each of these dimensions.

Didactic	Open-ended
Active	Passive
Simple structure	Complex structure
Integrated	Free-standing
Neutral	Polemic

So you could have a programme that would be somewhere along the didactic/open-ended variable. Now that programme you saw would be towards the open-ended end of the didactic/open-ended variable. There would be no teacher or academic telling students what to look for in the programme, but you also could have documentaries where there was guidance and direction.

You could also have an active or passive response from the student. There could be explicit and overt activities for students; things like 'watch this' or 'do this' during the programme or activities afterwards, or it may just be the programme is presented to the student.

The programme could vary between a very simple linear structure with a clear story line, to a very complex structure, with cuts, time shifts, jumping about from one topic to another.

It could also be integrated or free-standing. Now in the Open University system an integrated programme would be one where there are explicit links between the programme and the text, where it is very clear where the programme fits into the course. A free-standing programme would be a programme that stands back, could be watched independently, but in a way the student would have to think about how it links in to the rest of the course.

And the last one is a very interesting one: a programme can vary along the neutral polemic dimension. In other words you could stand back rather like that programme did, and not take a viewpoint; it could be balanced, show people for and against the viewpoint, or it could be very polemical. Now a programme can be polemical without necessarily being didactic. It could be polemical by presenting people with views without any kind of instruction about how to interpret that material, but it could be a very strong argument. Neil Postman's talk was clearly towards the polemical end of the dimension.

Now we found amongst these seven programmes, that although they varied to some extent, generally they tended to be towards the open-ended, passive, complex, free-standing neutral side. That was the tendency of Open University documentary-style programmes.

Now the second thing we found was that the teaching function of the television programmes differed from the teaching functions of the text. When we talked to the producers and the academics, we found that the programmes were meant to be interpreted, analysed, students were meant to apply what they'd learnt in the text, to the programmes. The texts tended to be didactic.

So what the students were expected to do when they watched the programmes was quite different from what they were supposed to do, when they were reading the texts.

The third thing we found was that only in the television programmes did students have a chance to develop what I call these 'high level' skills of application, analysis, interpretation and evaluation. The only other time they would have a chance to do that would be in their examination questions or in their essays which counted towards their grades. The text very rarely gave this opportunity to practise these higher level skills. The text asked them to comprehend and to reproduce what was in there, but the programmes were challenging the students to interpret the world in the light of the principles in the texts.

And the fourth thing we found was that both producers and academics saw these programmes as relevant and important parts of the course, so there wasn't a dispute, usually, between the producers and the academics about the importance of these programmes.

Now how did the students react to them? One third misunderstood the purpose or the functions of the programmes.

They saw the programmes as giving them new content, new stuff to learn, rather than being something to which they were supposed to apply what they'd already learnt, or interpret things in terms of what they'd already learnt.

Another third understood that they were supposed to approach the programmes differently, but were unable to do it. It was just too difficult. With regard to that particular programme I showed, the unit talked about ideology and how it affected the way that people look at problems. Students knew they were supposed to use the concept of ideology to understand how people react, but couldn't do it.

So consequently only one third of the students both understood and were able to use TV in the way intended. And you won't be surprised to hear that although the grades are assessed independently of students watching TV programmes, these students were the ones who got the highest grades. They had a general learning ability which enabled them to do this which seemed to spill over into their other academic activities.

Even more interesting, many of the students saw the television programmes as irrelevant or unhelpful: "I got nothing new from this" would be a typical comment. "It didn't provide anything that I didn't know already."

And lastly, the majority wanted the Open Univesrity to give more help in using television on their studies. They knew that they weren't getting out of the programmes what they felt they ought to be getting.

Now I want to say something here about what we see television doing in our system. This is a rather personal view and it's not necessarily shared by other people in the University, but I see television as having two rather distinct functions, in our system at any rate. The first one is to provide knowledge in a new way, or in a different way from what the students would get through text or through face to face tuition. A medium is one way through which we gain knowledge of the world around us, it's a window on the world if you like. Now the knowledge of the same topic can be represented in many different ways: verbally, numerically, physically, conceptually, symbolically, and visually. If you take the concept of heat, you can represent it by words as "hot," by number (110° farenheit) physically, by touch. You can experience it through concept: "a form of energy arising from random motion of molecules of particles," or symbolically (a man dragging his way through the desert). And these are all different ways of knowing about heat. Eventually though you have to relate those, you have to bring them together, you have to synthesise the experience, if you really want to fully understand the concept of heat.

Now television's one way by which experience can be provided. But the experiences of knowing through television are not necessarily the same as knowing it through, say, text.

Let me give you an example. I want to show you something from a math foundation course. Most math teaching up to now has been through written symbol systems. This is the way one learns about math at a University level; I'm not talking about experience of manipulating cuisinaire rods and so on in school. With television we are able to represent that knowledge in a different way, in a way I want you to see in this example.

[Narration from videotape omitted here.]

I would claim that first of all the concept being dealt with visually is exactly the same concept that is being dealt with in the correspondence text or in the hand written symbol system, but what the student's getting from it is quite different. He's getting quite a different experience, and of course he has to relate these different experiences together eventually. Now because television deals with concrete, visual images of that kind, it is a very useful bridge between the student's understanding--where he is at the moment, and where the abstract thought is taking him.

That function of television is very different from the one that we were trying with the documentaries. Although we were presenting knowledge in a different way, in the documentaries we were trying to get students to use knowledge through the development of skills. We were using television to try and get students to apply their knowledge to develop certain kinds of learning skill. So the documentaries were not about acquiring knowledge, but using that knowledge, and knowing when that knowledge is or is not appropriate.

Unfortunately, though, students at the Open University see education more as acquiring knowledge than as developing skills. They are adult students who have a very clear view about what education is. I'm reminded that at one Summer School I went to, I asked a student how he was getting on. He was a schoolteacher, and he said: "I came to sit at the foot of the Master and all I've heard is the chatter of sparrows," because all he heard was students talking to other students! He wanted somebody to come and tell him what the "truth" was.

Now it could be argued that we are wrong to use television in the way we've been trying to use it in documentaries. If it doesn't match students' perceptions, it doesn't meet their needs. But I think that's the wrong way to approach the topic. Developing high level skills of application on evaluation and so on is a crucial part of higher education. It's what marks off higher education from vocational training for instance. Providing the opportunity for students to develop such skills, in a distance learning environment, is very difficult and television provides an excellent medium for doing this. It is clear though that we have to give students much more help. We have to teach them how to learn in this way from television.

Now you might think that's a pretty obvious statement. We've been going for twelve years and why has it only taken until quite recently to realise this? Well, I think you have to realise what the reasons are, before you can actually do something about changing the situation, and Colin's going to talk about some of the reasons for us not realising that this was a problem.

Robinson:

I want to pick up one or two problems that we've identified over the years and how we tackled them. When we started out it seemed very obvious, the self-evident thing to do, that television should tackle the visual nature of a subject, the dynamic aspects and so on, and leave the text to handle data, principles, the exposition of argument and so on. "Of course, dead easy." And arriving at such a division of any body of knowledge should be again, very easy. I'm afraid our early experience in the Open University wasn't like that. There were, I think, two reasons for it.

In the first place the academics themselves were new to the Open University system. There was no other system like it. Traditionally they'd come into a lecture hall, and they'd chalked away, and guys had written the stuff down--fine. No other academic was at the back of the hall listening to it and criticising it. In the OU system when a guy writes something it's then exposed to all his colleagues in the other disciplines, who tear it apart, and the guy has to re-write it, re-draft it and so on. This learning process for the academics, upset them. They didn't have time for other things like learning how to work with other media. Even now to get him to think multi-media--you know, "I'll write this bit, this bit'll go on the telly, this bit needs photographs"--that is an uphill struggle. It seems that to commit anything of their precious subject to such an intangible, ephemeral form as transmitted television, still goes against the grain. Neither were the producers free of blame.

Many early programmes were made as if broadcasting were the only medium in the OU. Many of us were not trained teachers. Many of us were not trained producers either.

To decouple, to separate the broadcast from the text, suddenly was given some distinct positive virtue for the student.

Sure, it relieved the student of having to pace his or her studies against a transmission pattern, but more importantly, it freed the course team from the problems of co-ordinated productions. Academics could go off and write their bits and the telly guys could go off and do their thing and hopefully in a year's time it all came together and would look lovely! What that left was for the student to make connections between the two media, connections which--the student didn't realise this--connections which weren't there! That was the problem. Television and Radio very rapidly became something else, the icing on the cake. Their script content wasn't examinable anyway because we couldn't guarantee, particularly in the early years, that everybody could or would see the stuff. So we couldn't put anything in there which was essential for learning which was not in text. That's changed a bit now but that's how it was in the first years. So we started losing audiences.

Now, why was this happening, why were these connections so thin? There was, as I said, a lack of understanding between academics and producers, almost a distrust if you like, between the two professions. There were the practial differences, the University is half way up England and the BBC was down in London, fifty miles away.

To get together with a guy you'd have to send him a memo or arrange a meeting and that meant half a day's travel and so on. The two institutions were very, very different. The University was new and was growing. The BBC, it was well established, "the best in the world," etc., individuals were reluctant to accept a 'partner' in programme industry. We had therefore to identify common points between us. We had to identify a need for these common points, and to be quite blunt we didn't know what we were doing. Worse still we didn't know that we didn't know.

It's taken years to realise that we were failing on this key issue, that students should not be left on their own to make the connections between the two media, between text and television for instance. Doesn't mean our students are stupid, it just means that it is very difficult, as you people here very well know, to interpret an event on television and see what it means in an educational context. In other words, we had to train our students to become visually literate.

I think we also assumed--and this was true of producers as well as academics--that since our students were 'mature,' and had been watching TV for most of their lives, that they would know what was the programme, that they'd be consciously aware of it, they would know what to extract from it, and that they would know how to use that material to learn.

Of course, 'no,' they didn't know that. For myself I fell back to the only bit of teacher training I ever had which is the old Army thing, "tell 'em what you're gonna tell 'em, then you tell 'em, then you tell 'em what you've told 'em," and I do that even now in my programmes. It's repetition, a reinforcement method, but it has to be extremely clear to the student what is intended and what they should do with it.

So what we do now, more and more, is to spell out aims of the programme, the intentions, both in the print and in the body of the programme itself; we don't assume that students have done any preparation for the transmission before they see it. For goodness sake, it's at 6 o'clock in the morning on a Sunday or something. Students don't prepare before that, even if they catch the transmission? We also try to spell out where possible (it's not always possible with an affective programme as it is with the cognitive types), behavioural objectives. "Having seen this programme, you should be able to do the following things ... When you've seen the programme, try the self assessment questions in the printed broadcast note which will check out whether you've actually achieved these objectives."

My first clip is an extract which has very crudely such aims and objectives built into it. It's third level, Materials Processing, but the subject matter won't worry you. It's sort of a substitute for a field trip, if you like.

[Narration from videotape omitted here.]

By the way, that's fairly typical of the output of the technology faculty, a lot of location stuff, the substitutes for the field trips that you would have done in a conventional university.

I mentioned I think broadcast notes with assessment questions. You might like to glance through this. These are the notes that went with that programme, pass round T352 broadcasting-booklet.

Okay but that kind of technique isn't enough. It's taken some time but the producers now recognise that the printed text is the core of the material ... that's where the threads of the exposition are, the self-assessment questions, the references, the overall structure. So within that context then, the video tapes, transmission and radio tapes have to be seen as part of that structure and totally linked to it. Either for instance the TV is a substitute for one section of that text and the student is directed, "Make sure you have read sections one and two before catching this transmission." Or within the text certain specific things are referenced out like "This is exemplified in the assembly of the automobile tyre and you can see this on television," or "This chemical process is best shown by animation, and you can see that in television programme so and so." Whatever approach is taken it must be made clear to the student. The key phrase that we knock around now, our jargon for this, is "perceive relevance." The student must perceive that stuff as being a necessary and integrated part of his studies. Unless we prepare and manufacture text and television goodies together, we're not going to achieve that integration. "Elementary" you must think, "why the hell weren't you doing it twelve years ago?" Well, we didn't, that's the truth of it. We just didn't. The two institutions had different time-scales and different manufacturing criteria, and it's only now, after twelve years, that we're coming to grips with a co-ordinated production schedule.

From the start, the academic ideas to be taught should be provisionally allocated to the most appropriate medium. The feasibility of each component can then be examined as substantial manuscripts, and programme scripts are drafted, with author and producer constantly in touch. They design holistically knowing each medium will direct the student back to the other, each feeding on the essential nature and unique benefits of the other.

Ideally, there comes a point where--I believe--it's best to record the film TV or audio cassette, and reach fine edit stage, before the next text is finalised and handed over to the copy editors. This does mean sizeable gaps in both schedules and neither of the institutions at the moment is very happy for that. It means stretching the entire production schedule up to two years or more.

I think it's time for me to summarise what I've said and I can do this by showing you our latest efforts. We recently re-made our foundation course in technology, that's both for students who may go on to be engineers and also, for instance, people in the arts who just want to know what the effect of technology is on their lives. It's called 'Living with Technology.' We declared an aim for that course, to help students make better use of broadcasts, and we employed two overt devices, one of them is a prologue, a guy just sitting there as you will see, spelling out what the programme intends to do, how the student should go about viewing it and so on and hopefully giving them some objectives. This is the third programme in the series.

[Extract from narration of T101 TV 3 "Home Sweet Dome"]

"WHY DESIGN A DOME?"

Nigel Cross

Although it's only powered by the sun and the wind, Robert Reines' dome home obviously provides a reasonably comfortable shelter. But why did he set out to design and build such an unusual home, putting up with the hardship and inevitable emotional difficulties as well as tackling all the technical problems? I'm going to get Robert to give you his own reasons in a few minutes. But first I want to say a little about the television film "Home Sweet Dome." It was a documentary. And by that, I mean that it's a sort of substitute for actually being able to take you there personally and show you the place. So one thing the producer tries to do in making a film like that is to give you his impression of what it's like actually to be there, as well as simply telling the story. He was trying to give you a slice of real life out there in New Mexico. So the film was not setting out to convey many hard facts. You were not meant, for instance, to learn from the film just how a solar collector or a wind generator works. Robert and Lee explained only the basic principles of their various pieces of hardware, and how those pieces relate together to make a complete working system that maintains a comfortable environment. And that's all that you were supposed to be learning. If I had wanted you to remember specific details or say, any of the numbers mentioned, they would have been emphasised much more. Now any documentary film is inevitably artificial. After all, you are not there, a film crew is there on your behalf. And the producer is there making decisions about what to film and, later, *about what to edit out of the film and how to string it together. We brought back about five hours of film, of which you're going to see only one sixth--fifty minutes worth. So how real is the story you've been given in the edited film, then? Well, let me first of all assure you that the producer and I have tried not to mislead you. The whole thing is not some kind of elaborate hoax--Robert and Lee Reins really do live in a dome powered only by the sun and the wind--and we didn't fake any of the details! For instance, in the dinner sequence at the end of the film, their electric cooking pan on the table, their record player and their lights--and by the way all the extra film lights--really were powered by the wind. And, of course, Robert and Lee are real people. They're not actors, so they're not asked to do take after take after take of carefully rehearsed scenes until they get it right. Obviously what you saw them doing in the film was being performed deliberately for the camera. Now, the conventions adopted for a film like that include pretending that the camera isn't there. But it is--along with at least five or six people standing behind the camera carefully watching what's going on--and that affects the behaviour of the people being filmed. For one thing, it tends to make them more inhibited and subdued. Robert and Lee are a lot more relaxed in real life than they may have seemed to be in the film. Can you imagine what it was like for them, for instance, eating that quiet supper together--only with half-a-dozen strange people silently watching and recording them? That kind of thing affects your response to the film, because it affects your perception of what those people are really like. Another thing you should be aware of when watching documentaries is that often the pictures are being used to convey as much as the sound track, or maybe more. For instance, at the beginning of the film was quite a long sequence of shots of Robert and Lee doing ordinary things like washing-up. Now, those shots were there as a visual way of saying that ordinary life does go on there, and that they regularly use ordinary appliances like refrigerators, juicers and electronic razors. So as well as helping to improve your literacy and numeracy during this course, we want you to become more visually and aurally alert. Watch and listen. I wonder if you noticed another example of that sort of visual shorthand. Do you remember seeing, towards the beginning of the film, a shot of the entrance door? With its sign announcing the Integrated Life Support Systems Laboratory for Spaceship Earth? And the date, 1972? Apart from the simple fact of telling you when the dome was built, that sign also conveys some of the attitudes behind its design. And that's one of the things I also tried to draw more directly out of Robert, when I recorded an interview with him in which I asked him for some of the reasons that underlay his dome design. I asked him first whether it wasn't rather a crazy idea?*

This was not completely successful. Quite apart from that example, not making enough connections to the text, some students complained that they could not take in everything that our friendly academic said. Others misinterpreted his attempts to be witty, a real regular guy, as being cynical and patronising. This prevented them from actually listening to what he said.

The other device was to transmit radio programmes--theoretically within 15 minutes or so of the end of the television programme. I said theoretically, because in practice, in competition with so many other OU courses, this was not always possible. These radio programmes reflected back on the style of the TV, commented on what the student should have got from it, and then went on to develop some particular aspect in more depth.

Bates:

Another approach that we've tried, in fact we tried this approach first--is to show students, within the programme itself, how to use the programme. Now I showed you a little earlier the first extract of the Union Meeting. That was from the first programme on the course, a 50 minute documentary. In the second programme on the course, we actually went back to that first programme and said: "Right, this is the way we would like you to have interpreted that programme." So I will now show you a little bit from that second programme.

[Narration from videotape omitted here.]

We actually evaluated both the first two programmes; we got some interesting results. For instance, the women students were less able to do the analytic study of the programme than the men students. The women got very angry about the content of the first programme, because they felt there was so much discrimination against women portrayed in the programme. But they weren't able to interpret that in the intellectual way in which the course team wanted, as well as the men who watched the programme. And that's why the point was made in the second programme about whether one can distance oneself from something one is very much involved with.

The second research finding that we found very interesting was that this second programme was very well received by the students. They said they wanted more programmes of this kind. Even more interestingly, a further third of the students achieved the objective of the first programme, so the second programme was very effective in increasing students' ability to do what we wanted them to do.

But that's a very expensive way of using television, if you have to make one programme for every other programme that you make, to explain to students how to use television. So what we've tried to do is to create a briefing package for students before they start their studies. What we've done is to put together two cassette tapes with a handbook. Now these go out to tutors and to students before the students begin their University courses. We have just prepared this and it'll be going out next year.

What we've done is to show students different kinds of programmes that the University will be putting out to them, going from the straight didactic lecture, right through to the open-ended programme, giving them exercises and showing them how to try to use this kind of programme material. Now we haven't got time to show more than two brief examples. The first one is a didactic type lecture, it's about Art, and this is from the Arts Foundation Course, as an example of the material that's on the tape.

[Examples omitted here.]

That's an easier type of programme for students to handle, because they know pretty clearly what they are supposed to do with it. But there are some exercises in that handbook which will help them to get more out of it than they might do just by sitting down and looking at it.

The second extract is an example of a more "didactic, structured" documentary. There is still a lot of interpretation left to the student, but there is guidance given on the soundtrack on what to look for. This is a programme about Algonquin National Park in Canada. It's from a geography course.

[Example omitted here.]

Even though we feel that such help for students is necessary, I think we are more aware now than we were of the scale of the problem. We have a very big problem to tackle if we want to make students literate in terms of using television for their studies. My own view is that in the long run the only way you will make students visually literate is to build this into the structure of the programmes that you are making. Now, we've tried to do this on T101; Colin's going to show you how the structure of the programme changes as the course progresses.

Robinson:

Yes, what I want to do now really is show you two programmes from the course, to compare their style. As I said earlier we hoped that by drawing their attention to the aspects of style and presentation that by the end of 17 programmes students would be able to cope with a much more sophisticated format. So let's just look at two. This first one is from the beginning of the course--it's a cognitive programme--I think it will be quite clear to you what you are being taught.

[Narration from videotape omitted here.]

Well, I think that was pretty clear, and we even fed the key words up on the screen. Right, so 17 programmes later, a year's study later, we hope they can cope with much more sophisticated things, and they should also have developed an opinion about technology, so students were told in the prologue to this last clip, that this programme was aimed at their attitudes, in this case to 'cars' which I think translates in American as automobiles. Um, this one's for Neil Postman, by the way.

[Narration from videotape omitted here.]

O.K., to wind up for myself then, I only want to say that I didn't come over here to proclaim our success rate, but simply to show you where we are at, what we have done, and to recommend to you a continuous introspection, a sort of re-examination of what you as producer or academic may have regarded as a "sacred cow." Be prepared to take on the results of feedback from your students, if you can get it, and if you can interpret it.

Bates:

We've been talking about broadcast television, and many of the problems we've had, I think, will go away when we are able to use cassettes and discs more, but for some time we will still have to use broadcast television. Secondly, one has to ask to what extent we've been discussing a problem unique to the British Open University. In some ways the problem is unique, especially since our students look to television as a supplement. They are already in our system, they've already enrolled, they see the text as a main part of the course. And they look to the programmes to give them specific help. In general broadcasting, however, or general educational broadcasting, particularly where television is the sole medium, programmes have to be motivational and attract and often "stand above" the viewer.

But in any learning situation, television is only a part of the learner's experience. The viewer still has to make the link between television and the rest of his or her life. At the Open University the relationship between television and other learning is very explicit, and there it makes it easier for us to see the kind of problems that we've been discussing today.

Now, my guess is that the same problems will exist for other educational television programmes, or even general broadcasting. For instance, how do people relate what they see in general documentaries, like "C.B.S. Reports," to the rest of their lives? What do they actually learn from such programmes? I was interested to hear what Dr. Postman had to say about that on Sunday. Does the general public have the skills to learn anything significant or substantial? What do producers and designers of all serious programming owe to the public? Producers must surely consider not just how viewers can be attracted and held, as important as that may be, but also don't we all have a responsibility to try to aid viewers' understanding, and shouldn't this be built into the programmes themselves, rather than as a separate educational course of study?